NEW EQUIPMENT DIGEST

EQUIPMENT • IMPROVEMENTS • PROCESSES • MATERIALS • METHODS • APPLICATIONS • LITERATURE

Vol. 7 September, 1942 No. 9

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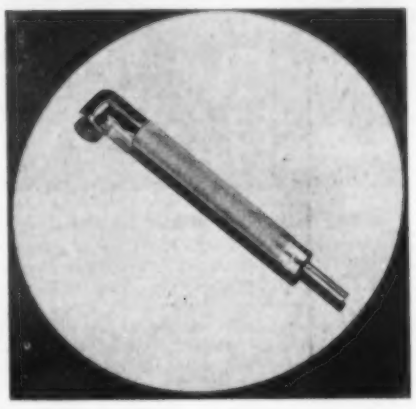
ANGLE TYPE DRILL



Built especially for drilling in difficult-to-reach, relatively inaccessible spots, this Aerocraft Junior aircraft drill is designed to operate at high speeds. It will remain cool, even after prolonged operation. This tool will reach into places which could not be drilled with conventional type units.

Overall length is 5¾ inches. Nose spindle is fitted with 10-32 thread and is available only in 90-degree model. Device is applicable for use in aircraft assembly operations, as well as for general industrial use. Made by **Aircraft Tools, Inc.**, Dept. NED, 750 E. Gage St., Los Angeles, Calif.

▲ Mention Item **NED-4364** when writing ▲

METAL SPRAY UNIT

For applying protective coatings or for reproducing likeness, this self-contained portable metal atomizer is capable of spraying any neutral alloy which has melting temperature of up to 600 degrees Fahr. Equipment is recommended for use in making templates, spotting or checking dies, and reproducing molds. It is especially suitable where accuracy of reproduction is so fine that even pin scratches must be reproduced. Device is foolproof in operation. It requires only connecting with electric power and factory air pressure line for operation.

Heating contents of unit up to melting point requires approximately 12 minutes after cord has been plugged in. Actual spraying is accomplished by merely pressing trigger on handle of gun. Control knob immediately above handle regulates flow of metal through nozzle. Unit can be operated by un-skilled operator and no protective clothing is needed.

Unit is offered complete with gun, electrical heating units, insulated melting pot, control handle and nozzle. In addition, 15 feet of air hose to connect to gun and 9 feet of cord with plug in are supplied. Made by **Alloy-Sprayer Co.**, 2050 Book Bldg., Detroit, Mich.

▲ Mention Item **NED-4365** when writing ▲

What Have You?

NED's editors cordially invite you to send in announcements of your company's new developments. We are interested in publishing descriptions of all new equipment, new materials and allied products of use in manufacturing and process industries. Please address your communications to the Editor, New Equipment Digest, Penton Bldg., Cleveland.

Read Carefully
CHECK AND PASS ON

CHECK	NAME AND TITLE	SEE ITEM NO.

RUBBER-LIKE PLASTIC

Developed to replace rubber and adaptable for electrical tape, friction tape, raincoats, garden hose, wire insulation, golf balls and footwear, this ethyl cellulose plastic is said to be made of materials which are available in sufficient quantities for large-scale production. Raw materials required for manufacture of product are cotton linters or wood pulp, caustic soda, chlorine and alcohol from natural gas or from fermentation of agricultural products.

Some formulations have good abrasion resistance and tensile strength sufficient for many applications. Water resistance comparable to that of compounded rubbers can be built into these soft-type plastics. Strong soap compositions will not harm product. Some formulas are not affected by motor oils and butter, indicating it may possibly be used for containers of food products. It has resistance to ozone, a point of interest to electrical industry. Developed by **Hercules Powder Co.**, Wilmington, Delaware.

▲ Mention Item **NED-4366** when writing ▲

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How To Sell War Bonds!

CAREFUL planning and promotion, as well as full cooperation on the part of management and labor are essential factors for any industrial War Bond drive. How such a program can be carried to successful completion is exemplified by the intensive one-week campaign staged by The Cleveland Tractor Co. of Cleveland. As a result of the full cooperation by all employes, the coveted Treasury Department "Minute Man" flag now flies over this plant.

When the War Bond committee was originally formed as a part of the War Production Drive, 33 per cent of the employes were already signed up under the Payroll Savings Plan. The committee worked for several weeks and raised the number participating to 74 per cent. It was then decided to conduct an intensive one-week drive to "put over" the War Bond campaign in this large industrial plant.

(*Continued on Page 2*)

Top Left—Treasury Department "Minute Man" flag flies from staff at The Cleveland Tractor Co. plant. Lower Left—Employes listening to speaker at War Savings Plan rally prior to opening of drive. Above—Lining up for Parade. Leading tractor was donated by workers to Gen. MacArthur through efforts of War Production Drive Committee. Right—Large thermometer indicates progress of War Bond sales during course of campaign. Workers entering plant watched upward climb of column throughout drive. Below — Cooperating with the Cleveland War Bond Drive parade, this model MG1 Cletrac promoted bond sales.

with PLASTIC ROCK!

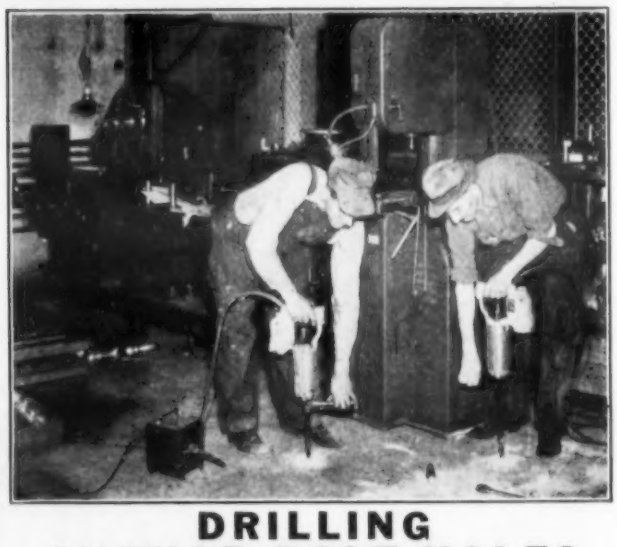
Trowel a smooth, tough, plastic surfacing right over your old concrete or wood floor.

Plastic Rock comes complete, packed in barrels. Nothing more to buy. No application "formula" to confuse you. Simply mix and trowel right over old floor. Average depth one-half inch. Old floor Saturday is a new floor Monday. Also patches concrete to a perfect feather edge. Plastic Rock is absolutely spark-proof, skid-safe wet or dry, dustless, silent. Feels like cork under foot. Cannot splinter, crack, crumble, curl or loosen. Heavy loads in steel wheels actually improve it. Five-year old floors show no wear. Natural color is dark gray. Also furnished in red, green and brown. Used by U. S. Army, Navy and largest industries in America. Your contractor or your own crew can apply.

Ask for your copy of Report 220-9

UNITED LABORATORIES, INC.
16801 EUCLID AVENUE • CLEVELAND, OHIO

▲ Mention Item NED-4367 when writing ▲



DRILLING ANCHOR BOLT HOLES IN CONCRETE

Quickly — Easily — and Economically with Dependable

SYNTRON

ELECTRIC HAMMERS

Offices in all large cities

SYNTRON CO.

405 No. Lexington Avenue Homer City, Pa.

▲ Mention Item NED-4368 when writing ▲

CARBOZITE

Protective COATING

cuts maintenance costs!

OF

METAL - WOOD - CONCRETE

Carbozite Coating resists the corrosion of acid, alkali, moisture, sulphur water, salt air or water, smoke, etc. . . . is economical, can be brushed or sprayed easily . . . won't chip or peel . . . lasts for years . . . cuts maintenance costs.

No Priority Needed

No essential materials are used in Carbozite Coating . . . your supply is quickly available without red tape in returnable containers.

5 Colors

Standard Carbozite Black, Red Oxide and Green. Also non-corrosive Light and Dark Grey coatings.

Prompt Shipment

CARBOZITE Corporation
First National Bank Bldg., Pittsburgh, Pa.

WRITE FOR DETAILS

▲ Mention Item NED-4369 when writing ▲

How to Sell War Bonds!

(*Continued from Page* 1)

Fifty men were chosen as captains, representing all departments and all shifts. These men worked directly under the supervision of the Labor-Management committee. Prepared lists were made of all employes by departments. Each captain was given an envelope containing application blanks, with name, number and shift of each man or woman he was to contact. He was also provided with cards of certification for those who signed up, as well as buttons to distribute to them. Ample promotional literature was available for distribution, so that the employes could discuss the drive with their families.

Three days prior to official opening of the drive, large posters containing only a question mark were posted on all departmental bulletin boards. The next day, these were replaced with a large question mark and words, "Plus 5" in poster form. On the following day the posters carried a question mark and the figures "95 per cent." This set the goal for the week's drive, which was then officially announced.

Printed bulletins, explaining that the goal of the drive was to have over 95 per cent of the employes subscribing 10 per cent or more of their wages for the purchase of War Bonds, were handed employes as they enter plant on the first day of drive. A record of "Any Bonds Today", played over the plant's public address system, greeted workers at beginning of each shift.

Different posters depicting the full significance of War Bonds appeared on bulletin boards each day. These posters were created by employes. Also posted was graphic chart showing each department's progress in the campaign. Percentages were changed each day, showing increase of various departments. This method of stimulating competition was found to be the most effective promotion used.

At the end of the drive, 95.5 per cent of all employes had pledged 10 per cent or more of their earnings toward the purchase of War Bonds, under the Payroll Savings plan. Applications continue to come in. Arrangements have been made to contact every new employe as he is hired, so that the percentage of participation will remain as high or higher than it is at present.

With appropriate ceremonies, the Treasury Department "Minute Man" flag was awarded to the employes. The flag flies from the plant flag pole, directly below the American flag.

This is only one of thousands of similar drives in war plants, commercial establishments and industries throughout the United States. Full cooperation is offered any firm by the Treasury Department in planning organizing and conducting a War Bond Payroll Savings Plan Drive. Write to **Treasury Department**, Section D, 709 Twelfth St., N. W., Washington, D. C.

▲ Mention Item NED-4370 when writing ▲

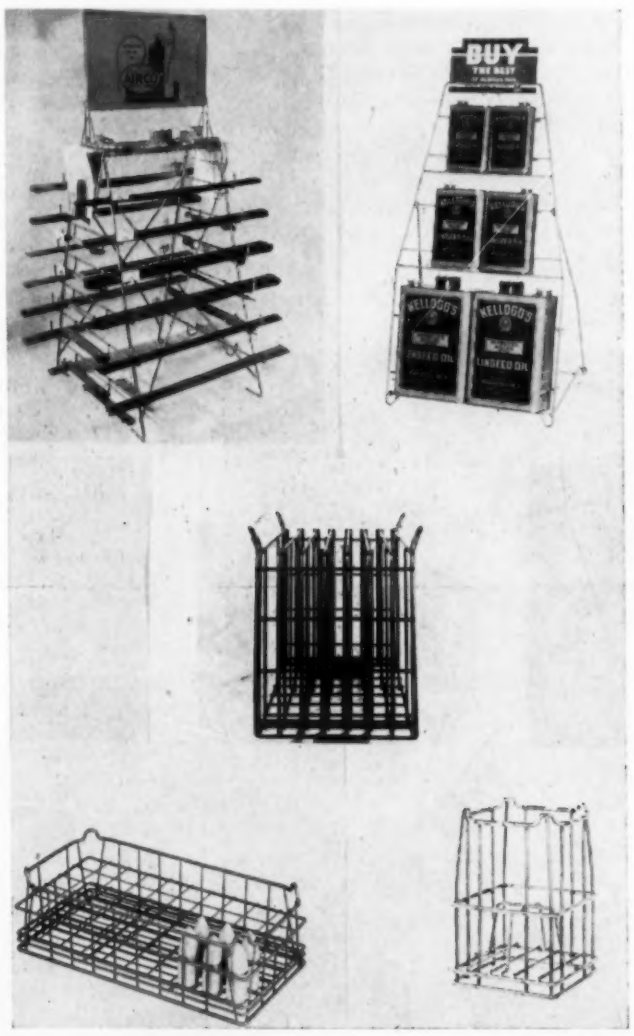
CONVERSION + + +

DISPLAY STANDS to WAR PARTS . . . .

Same Machines Make New Products

WIRE display stands of every conceivable size and shape for exhibiting products in wholesale and retail establishments have been replaced by heavy duty wire baskets for handling of war materiel during manufacturing processes as

(*Continued on Page* 3)



Top Left—Welding rod display stand which holds over 900 pounds. Top Right—Pre-war display for linseed oil. Center—Heat treating basket for heavy tank armor plate. Lower Left—Handling basket for 37-millimeter shot. Lower Right—75-millimeter shot or shell handling basket

ARMOR-PLATE saves LIFE AND LIMB

Another "ULI" sensation! Insurance against falls and injury—*wherever feet may slip.* Just spray or brush Armor-Plate on dangerous surfaces, and save limbs and lives. Abrasive texture like No. 3/0 emery cloth. For metal floor plates, stair treads, ramps, corridors, airplane wing "steps," ship decks, gangplanks, truck running boards, stepladders—wherever wet, oily or slippery surfaces hamper production and threaten life. Rust-inhibiting. Sticks to wood, metal, concrete, slate, and glass. Cost applied, less than 1c per sq. ft. Jobs three years old show no wear. Choice of gray, red, brown or green.

FREE—Report No. 419-I, applied sample attached

UNITED LABORATORIES, INC.
16801 EUCLID AVENUE • CLEVELAND, OHIO

▲ Mention Item NED-4371 when writing ▲

NOW MULTI-WALLED PARTS DE-BURRED IN 1 DOUBLE-QUICK OPERATION

With the cutting blade in extended position, as shown, the burr around any hole may be quickly removed. Sliding the knurled collar upwards retracts the blade to within the diameter of the shaft and the work may be removed or moved to a new position and the blade re-extended.

NEW NOBUR BURR-REMOVING TOOL QUICKLY AND EASILY REMOVES BURRS FROM HOLES ON MULTI-WALLED PARTS!

NOBUR eliminates slow, costly hand methods of burring...used on any machine tool, lathe, drill press, portable electric drill or at end of a flexible shaft. Minimizes costly 'rejects' ...enables operator to do more in less time ...increases production, lowers production costs. No skilled help necessary...easy to operate...green 'trainees' and women operators do burring with speed and accuracy...smooth, clean cutting action of the NOBUR will pass the most critical inspection. Important parts are hardened and ground. Shaft is finished to a diameter slightly under its basic size...double-edged cutting blade is of special tool steel, cuts freely in either alloy steels or soft metals. Tool is simple in construction—rugged. For complete information—*write*..

NO BUR TOOLS

NOBUR MANUFACTURING CO.
906 North Orange Dr. Hollywood, Calif.

▲ Mention Item NED-4372 when writing ▲

DIEBEL Hi-Speed STAMPING PRESS

So completely automatic—so amazingly simple in design—so wholly safe to operate—so absolutely foolproof — one woman operator can handle a single Diebel Press or a battery of them, even with other duties. **Saves your skilled mechanics.**

Top production speed — 550 a minute — skyrockets production; slashes costs. Variable speed control from 180 to 550 strokes per minute.

QUICK DELIVERY - - - WRITE FOR BULLETIN

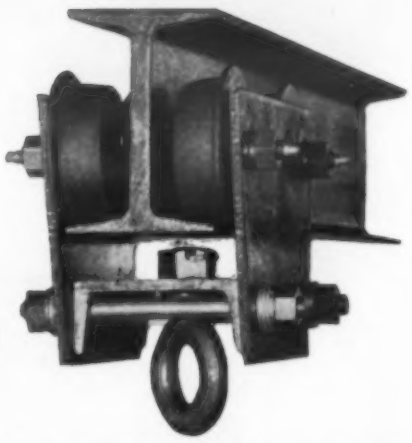
DI MACHINE CORP.
DIVISION OF DIEBEL DIE & MFG. CO.
3652 N. LINCOLN AVE. CHICAGO

▲ Mention Item NED-4373 when writing ▲

GRAY TROLLEYS

are **SAFE** and **EFFICIENT** with CLOSE HEADROOM

EQUIPPED WITH GRAY Thoroughly Sealed Ball Bearing Trolley Wheels



Long trouble-free service is what you get with every Gray trolley equipped with new type, Gray ball bearing trolley wheels which take maximum radial and thrust loads. Gray trolleys are easily transferred through the shop and can be furnished in 250 lb. to 2 ton standard capacity sizes adjustable to suit various size I-beams. Write for illustrated bulletin describing features of Gray trolleys and trolley wheels.

GRAY HUB COMPANY
Incorporated 1922
17265-17403 GABLE AVENUE DETROIT, MICHIGAN

▲ Mention Item NED-4374 when writing ▲

SPEEDS PRODUCTION! CUTS TIME AND COSTS!

SPEEDY AIR VISE

FAST! POWERFUL! FOOT CONTROLLED!

$24
Complete with Foot Control Valve, Air Hose and Fittings

HAND FREE OPERATION!
• Foot operation leaves BOTH hands free for fast insertion and removal of work. Vise stays open or closed without constant foot pressure.

Most important vise design in years! A fast-action, hard gripping air vise that speeds production; saves time, labor and costs! Speedy Air Vise operates from air line or individual compressor, exerting a grip of 15 times air pressure! Jaw opening adjustable up to a maximum of 3 inches. Maximum travel of ½ inch assures rapid insertion and removal of work. Employs no piston, but instead a long-life, multiple-type diaphragm . . . eliminating friction loss, air leakage and slippage. Rugged, compact, low priced, it is the ideal vise for speeding up numerous operations.

Write At Once For Circular D-9

W. R. BROWN CORP., 5720 ARMITAGE AVE., CHICAGO, ILL.

▲ Mention Item NED-4375 when writing ▲

CLEANS RINSES DRIES

INSTRUMENTS, METERS, GAUGES, BEARINGS, PRECISION UNITS OF ALL TYPES, PARTS THAT REQUIRE FAST, PERFECT CUSTOM CLEANING—IN CONTINUOUS OPERATION

L & R INDUSTRIAL CLEANING MACHINES & SOLUTIONS

Work basket 5½" OD x 3⅜" deep. Parts are cleaned and dried thoroughly of grease, grime and discoloration in continuous operation, without causing rust, corrosion or removal of metal. Perfect, uniform results, amazing savings in man hours. Almost 15,000 L & R Machines already in use.

FREE: *Illustrated booklet—demonstration. Write, outlining cleaning problems. Let L & R engineers and chemists solve them, without obligation.*

L & R MANUFACTURING COMPANY
54 CLINTON STREET, Dept. E NEWARK, NEW JERSEY

▲ Mention Item NED-4376 when writing ▲

CONVERSION + + +

(*Continued from Page 2*)

output of Union Steel Products Co. in midwestern city. This conversion was principally one of design, as materials used and machines employed for producing war goods are very similar to those used in turning out peacetime products.

Shown on opposite page are typical products now being made, as well as wire racks and stands which were part of extensive line prior to entry of this plant into war work. Baskets, made of preformed wire which is spot welded into finished form, include handling baskets for shot, caps, shells, cases, fuses, bombs and similar containers for transporting parts

Top—Multiple welder speeds production. Top Center—Critical labor problem is met by using women operators on spot welders, releasing men for heavier work. Lower Center—Battery of small presses in wire fabricating department. Bottom—Paint baking ovens processing display racks. This equipment is now used for finishing ammunition handling and processing baskets

through manufacturing operations, cleaning, plating or other processing which may be required.

Production facilities which are now devoted almost entirely to making equipment to be used by industries engaged in war work include wire bending and shaping equipment; electric spot, arc and gas welding; and finishing facilities for hot dip galvanizing, plating, tinning, enameling and painting. Workers, long skilled at forming wire products, are now turning out similar equipment which is fully adapted to the war effort. Women are used to operate spot welding equipment, releasing men to handle heavier manufacturing operations and more difficult work.

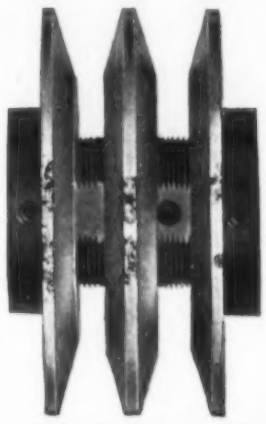
The design department develops baskets for handling ammunition parts. Intricate shapes are readily formed and fabricated which will speed up production handling and will protect precision munition parts.

For further details on how your plant may be converted to war work, contact the nearest regional office of the War Production Board, or write to the **Conversion Unit,** Contract Distribution Branch, Production Division, War Production Board, 462 Indiana Ave., Washington, D. C.

▲ Mention Item NED-4377 when writing ▲

VARIABLE SPEED

BROWNING OFFERS
Low Price "V" Drives
for
AIR CONDITIONING, HEATING, VENTILATING, and SIMILAR WORK



Available in a Wide Range of 1 and 2 Groove Sizes
Write for new Catalog giving application in drives

BROWNING MFG. COMPANY, Inc.
MAYSVILLE, KY.

▲ Mention Item NED-4378 when writing ▲

LOW-COST
GROUP HOSPITALIZATION AND LIFE INSURANCE
PLAN

A GOOD-WILL AND EFFICIENCY BUILDER FOR ANY SIZE COMPANY

Unique North American Plan affords dependable financial help for Company Employees and their families in case of unexpected illness or accident. No group too small or too large to participate. Plan offers exceptional coverage for factory, office, shop and store groups. No age limit. No medical examination. Life Insurance optional. Inclusion of family optional. Premiums—only a few pennies a day paid by Employee.

OFFERS THIS PROTECTION *TO EMPLOYEE AND HIS FAMILY*

★ **Hospital Expense in Case of Sickness**
★ **Hospital Expense in Case of Accident**
★ **Surgical Expense**
★ **Hospital Fees (Laboratory, etc.)**
★ **Maternity Confinement Expense**
★ **Compensation for Time Lost from Work**
★ **Loss of Life Through Accident**
★ **Loss of Life Through Natural Cause**
★ **Physical Dismemberment**

A SECURE WORKER IS A HAPPY WORKER

Mail coupon for details on introducing plan in your Company. No obligation.

NORTH AMERICAN MUTUAL INSURANCE COMPANY
Dept. 9-N, North American Bldg., Wilmington, Del.
Please send complete details on Employee Group Insurance Plan.
Name ..... Title .....
Company ..... No. of Employees .....
Address .....
City ..... State .....
(Attach coupon to business letterhead)

▲ Mention Item NED-4379 when writing ▲

▲ Mention Item **NED-4380** when writing ▲

★ ★ ★ *the New* **ALDRICH-GROFF**

CONSTANT SPEED—CONTROLLABLE CAPACITY

VERTICAL TRIPLEX PUMP...

For Services Including...

- **BOILER FEED**
- **DESUPERHEATING**
- **PIPE LINES**
- **PROPORTIONING**
- **PROCESS AND STILL CHARGING**
- **HYDRAULIC PRESS**

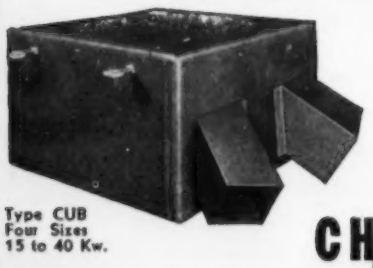
For constant speed A.C. electric motor or turbine drive. Low starting torque, with delivery infinitely variable from O to maximum rated capacity. For installations requiring automatic or remote manual control of output or pressure. Sizes from 11 to 100 HP with discharge pressures from 200 to 15,000 p. s. i.

Send for Data Sheet #65.

THE ALDRICH PUMP COMPANY
4 GORDON STREET • ALLENTOWN • PENNA.

▲ Mention Item **NED-4381** when writing ▲

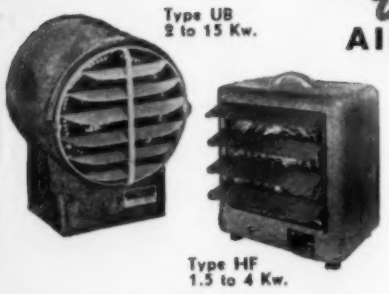
Get economical Fall Comfort with ELECTRIC HEAT



Type CUB
Four Sizes
15 to 40 Kw.

Put off firing up the slow, expensive steam system for autumn mornings needing only a few hours' heat. Keep plant and office temperatures just right, and avoid employee sickness, with these quick-acting, economical

CHROMALOX *Electric* AIR HEATERS



Type UB
2 to 15 Kw.

Type HF
1.5 to 4 Kw.

which can be installed anywhere a wire line can reach, avoid piping troubles, provide a dependable source of auxiliary heat in severe cold, make no demand upon steam boiler capacity, and are ready to give heat at all times—nights, Sundays, holidays, as well as during usual hours.

Various types fully described in the Chromalox Book of Electric Heat, sent on request. Make sure of early delivery by ordering now—we will help you figure the sizes you need

All the above air heaters are blower operated, forcing a column of heated air where directed. Other types available for convection heating.

EDWIN L. WIEGAND COMPANY
7509 Thomas Blvd. Pittsburgh, Pa.

▲ Mention Item **NED-4382** when writing ▲

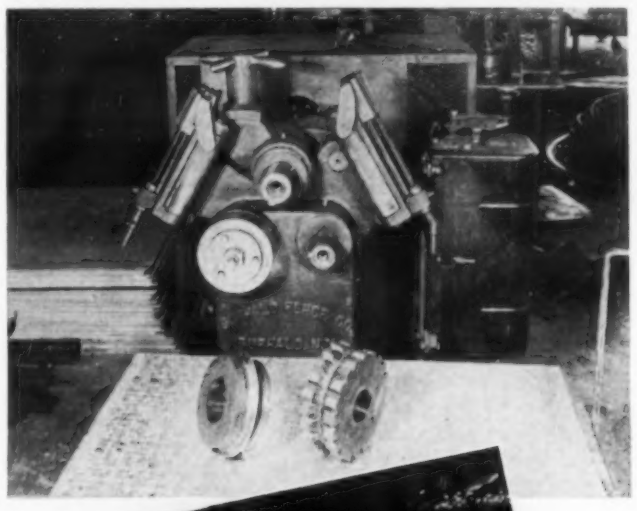
CONVERSION + + +

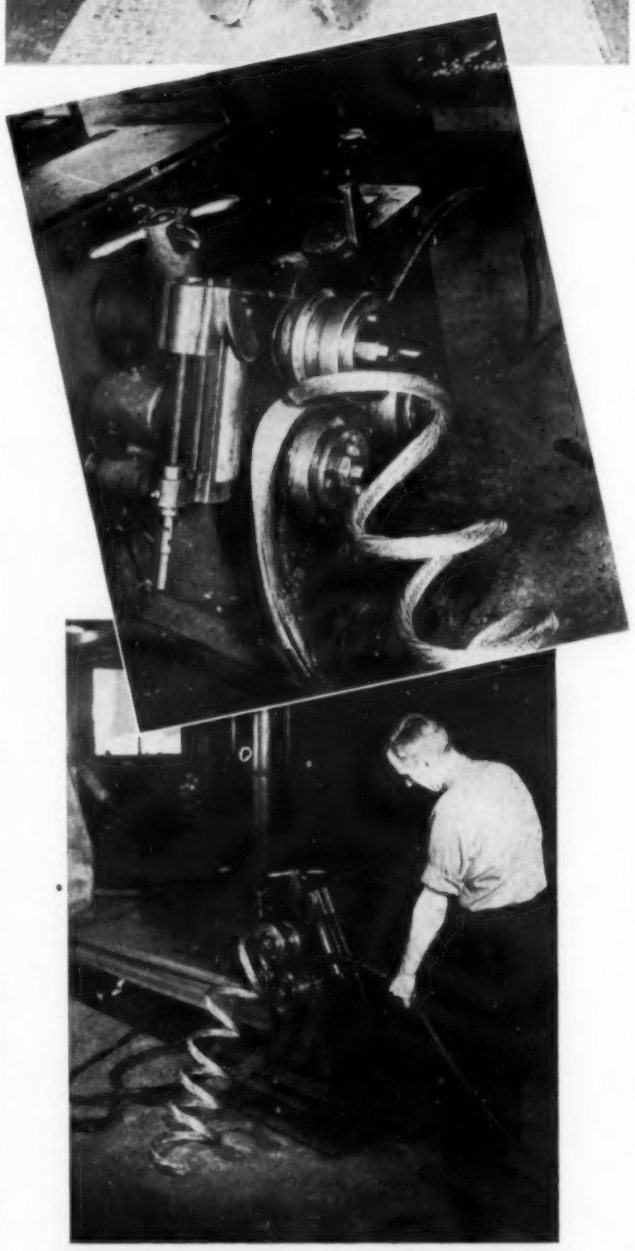
BENDING ROLL to CABLE SALVAGE

.... Machine Reclaims Rubber From Cable

CONVERSION of a single machine facilitated the salvage of large quantities of scrap rubber cable, saving both copper and rubber insulation. Former method was to burn rubber and cloth insulation off of cables.

Standard Buffalo bending roll machine at plant of The Timken Roller Bearing Co. was fitted with special wheels for this work. Lower wheel was replaced with notched gripper wheel.





Top—Buffalo bending roll machine with one lower wheel and the upper pressure wheel removed. Rubber salvage replacement wheels are shown in foreground. Center—Cable entering machine at right and stripped cable and rubber covering emerging at left. Bottom—Operator feeding scrap cable into rubber salvaging machine

Sharp center-flanged wheel replaced one upper wheel. This combination proved effective in removing insulation, cloth dropping away from rubber. Both rubber and copper are in saleable condition.

Salvaging operation is accomplished at rate of about 6 feet per minute. Cables ranging from ⅝ to 2-inch diameters are handled. Machine is converted for salvaging operation in about three minutes.

▲ Mention Item **NED-4383** when writing ▲

STORE FIXTURE to SHIP VENTILATORS

.... World's Largest Press Used

THOUSANDS of cowl ventilators, destined for installation on hundreds of Liberty 10,000-ton cargo ships are now rolling off the presses at Weber Showcase & Fixture Co. in a western city. Formerly made by combination of pressing, riveting and hammering, these ventilators are formed in halves from single sheet of steel. Halves are welded together to form complete unit.

(*Continued on Page* 5)

SAFE WIRE ROPE CLAMP

Complete safety, assured clamping and rapid installation are characteristics of the "Safe-Line" wire rope clamp finding wide favor in hundreds of industrial and utility plants.

This is the only clamp on the market that handles a wire loop and has approval of the Underwriters' Laboratories. Its installation requires absolutely no serving or splicing of the cable and completely eliminates personal injury to workmen.

The "Safe-Line" wire rope clamp is composed of a split, threaded collar fitting over and firmly engaging the strands of the wire rope, on each end of which is screwed a threaded streamlined lock nut. The clamp is entirely free of projecting parts and permits no frayed or sharp rope ends to be exposed.

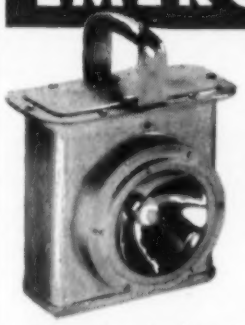
No special tools are required to properly install "Safe-Line" wire rope clamps.

May we send you complete information and price list of the "Safe-Line" wire rope clamps in rope sizes from ⅛ inch to ¾ inch? **National Production Co.**, 2561-2603 St. Jean Ave., Detroit, Mich. —Advt.

▲ Mention Item **NED-4384** when writing ▲

PREPARE YOUR PLANT NOW FOR

LIGHTS OUT EMERGENCIES!



THIS APPROVED NAVY-TYPE LANTERN LIGHTS AUTOMATICALLY WHEN YOUR POWER SUPPLY FAILS

Picture the chaos in your plant with the lights out! Injured employees, damaged machinery, and pilferage would seriously affect your production! Our equipment is rendering satisfactory service in strategic War Plants all over the U. S.

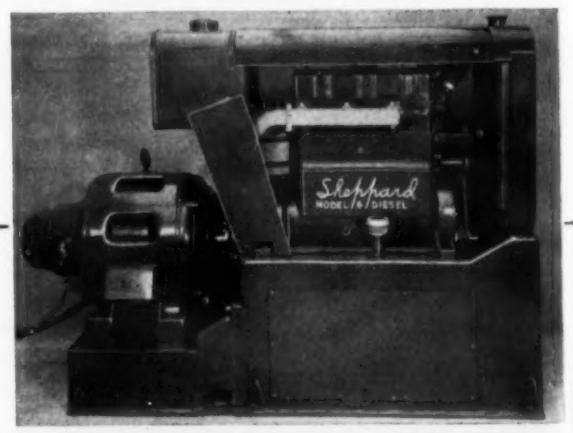
Single units, complete with mounting bracket and relay switch, $25.00 (quantity discounts on ten or more; write for details.) Descriptive Circulars on Request.

S.&G. MANUFACTURING CO.
149 Wooster St. New York

▲ Mention Item **NED-4385** when writing ▲

Dependable Power

ON THE JOB!



Sheppard All American Diesels provide a complete "package of power" for quarries, factories, ranches, service depots—any place where a dependable source of power is needed. One and three cylinder models, with oil-thrifty American made fuel injection system.

Write or wire for complete information.

R. H. SHEPPARD CO., HANOVER, PENNA.

SHEPPARD *ALL AMERICAN* **DIESELS**

▲ Mention Item **NED-4386** when writing ▲

YOU ROLL FOR SHORT MINUTES TRAFFIC ROLLS FOR LONG YEARS

600 lb. ROLLER LOANED FREE

IT'S AS EASY AS THIS! JUST PLACE, ROLL AND USE!

Flash-Stone

THE ORIGINAL IMMEDIATE USE FLOOR RESURFACER

Take all of the hard work out of resurfacing industrial traffic and work areas with this specially designed roller—which is at your call—an added service of Flash-Stone Company—originators of the IMMEDIATE USE floor resurfacer.

Flash-Stone will often be copied, but it can never be equaled. This material will OUTPERFORM IN PRICE AND SERVICE all imitation materials. Others may make claims. Flash-Stone does the job better, quicker, cheaper.

Get Flash-Stone.—In use by the leading heavy industries from coast to coast—often under conditions where other floor resurfacers have failed completely.

We will install if you are not in a position to do so—Representatives in principal cities.

Write today for Flash-Stone prices and full information about the free use of a Flash-Roll on your next floor job.

Flash-Stone CO., INC.
1930 N. 12TH ST., PHILADELPHIA, PA.

▲ Mention Item **NED-4387** when writing ▲

BYERS WHITE WING
The Original Modernized Power Pick-Up Sweeper
. . is shown here sweeping a factory aisle. Used by manufacturers whose names read like the "Blue Book of Industry," the White Wing simplifies industrial housekeeping. Both White Wing models use two Jumbo Jrs. 18" x 5.75 in front and dual 16" x 4.50 Jumbo Jrs. in rear.

GENERAL INDUSTRIAL TIRES GET THE TOUGH JOBS

...at Home...and in "Service"

Whether the call is for round-the-clock operation in 8 hour shifts, as above . . . the speedy factory movement of vital war materials . . . heavy loads or fragile parts . . . or direct service with our armed forces . . . General Jumbo Jrs. are demonstrating today, more than ever, that they can stand up and *perform.*

This pioneer tire-tube-wheel combination rolls easily *anywhere* . . . cushions and protects the load—the truck—factory floors and docks. Traction is exceptional: spinning is practically unknown. Filings, chips, etc., aren't picked up. Tire life is trouble-free and lives up to General's famous long mileage reputation. Exclusive and patented, the design of the Jumbo Jr. makes possible a type of service equalled by no other industrial pneumatic.

Available for war orders and for certain essential industrial uses.

For further information, write,

THE GENERAL TIRE & RUBBER CO. • AKRON, OHIO

COPYRIGHT, 1942, THE GENERAL TIRE & RUBBER CO., AKRON, OHIO

GENERAL JUMBO JR. INDUSTRIAL BALLOON TIRES

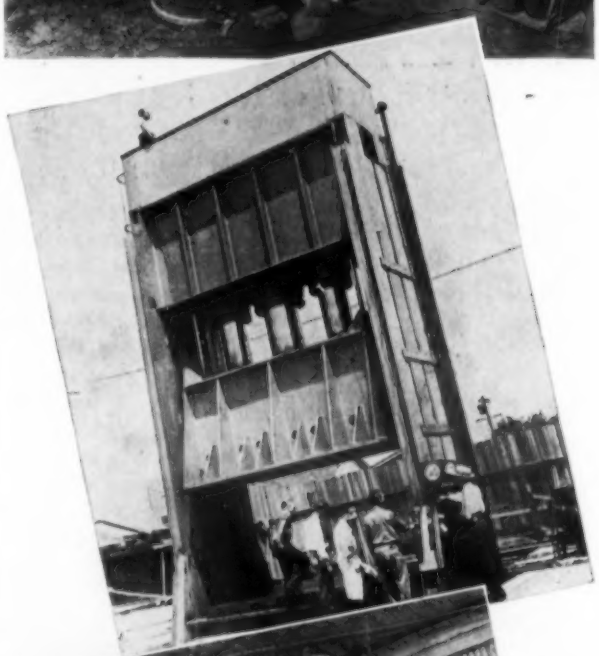
▲ Mention Item **NED-4388** when writing ▲

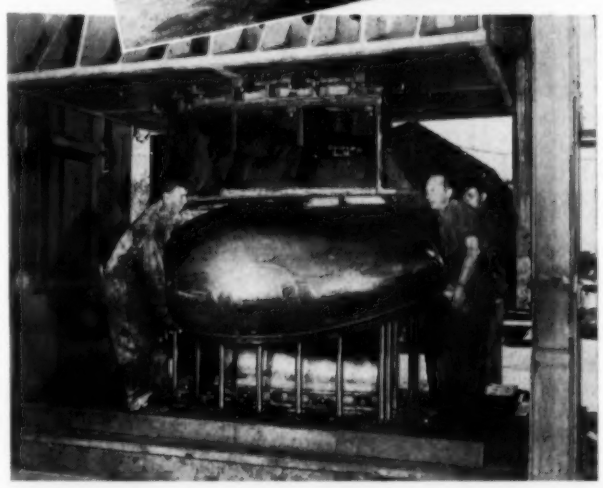
CONVERSION + + +

(*Continued from Page 4*)

Normal output of this plant was showcases, refrigerators and similar equipment. Experience in manufacturing this equipment is now devoted to turning out war goods, such as these ventilators.

Involved in making these parts are only ten operations, of which five are welding. Trimming of flanges is performed in 90 seconds or less with small, high speed friction saw, as





Top—These cowl ventilators are destined for installation on Liberty cargo ships under construction on three coasts. Top Center—Giant drawing press used to form halves of funnels. Lower Center—Half of each ventilator is trimmed with 6½-inch high carbon steel friction saw revolving at 9000 r.p.m. Bottom—Punch and die of hand-ground Meehanite iron are used, totaling over 13 tons in weight

shown. Funnel is mounted on jig which rolls on steel table for feeding into saw. Cut is clean and no grits are left.

For further details on how your plant may be converted to war work, contact the nearest regional office of the War Production Board, or write to **Conversion Unit** Contract Distribution Branch, Production Division, War Production Board, 462 Indiana Ave., Washington, D. C.

▲ Mention Item **NED-4389** when writing ▲

VIBRATION can Never Loosen PALNUT Double Locking Action

The PALNUT is a single thread, spring tempered steel locknut. When tightened, its arched slotted jaws grip the bolt like a chuck (B-B), while spring tension is exerted upward on the bolt thread and downward on the regular nut (A-A), securely locking both.

The unfailing security of Double Locking PALNUTS has made them standard for 15 years on Army, Navy and Commercial aircraft engines and accessories. Also widely used on machinery and equipment of every type. Complete details of principle, advantages, application, dimensions, etc., may be obtained by writing for new PALNUT Manual. Sample Palnuts on request.

THE PALNUT COMPANY
Manufacturers of Locknuts and Self-Locking Nuts
45 CORDIER STREET IRVINGTON, N. J.

▲ Mention Item **NED-4390** when writing ▲

More FLOW METER for Your Money!

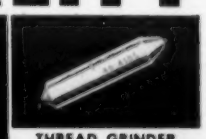
NOW you need pay little or no more for an accurate, rugged, easy-reading dial-type flow indicator than for a glass-tube manometer! And its all-metal construction will withstand pressures up to 400 lbs. per sq. in. – or to 800 lbs., if specified.

Foxboro Dial-Type Flow Indicators are made with the same care as the famous Foxboro Recorders. Their accuracy, compactness and low initial and maintenance costs make them truly outstanding. Dials are easy to read 20 feet away. Write for Data Sheet DMF 761-1. **The Foxboro Co., 134 Neponset Ave., Foxboro, Mass., U. S. A.** Branches in 25 principal cities.

FOXBORO Reg. U. S. Pat. Off. DIAL-TYPE FLOW INDICATORS

▲ Mention Item **NED-4391** when writing ▲

TOP QUALITY



THREAD GRINDER

SINGLE MOUNT

CLUSTER TYPE

DIAMOND TOOLS give you greater efficiency

Christensen has always stressed quality in the selection of diamonds. Our policy insures the maximum service from each diamond tool and saves your valuable machine time for essential production. The finest of Brazilian and African diamonds are selected for shapes and sizes best suited for your diamond tool requirements.

Diamonds selected are mounted by Christensen's Brostite Process into a permanent matrix of powdered metal alloy.

Write or wire today for our new illustrated folder.

Christensen Diamond Tool Co.
3690 E. Willis Detroit, Mich.

▲ Mention Item **NED-4392** when writing ▲

PRACTICAL DATA
FOR
PRESENT PROBLEMS

Here are two books designed to help users of Molybdenum steels and irons to conserve all alloying elements, and possibly steel and iron, by getting the most in the way of strength, toughness and wear resistance with the lowest alloy content.

"MOLYBDENUM IN STEEL" covers the fundamental metallurgy of Molybdenum steels. Heat treatment – physical properties – applications – of a number of these steels are treated at length.

"MOLYBDENUM IN CAST IRON" covers the effect of Molybdenum in gray iron, giving suggested analyses for practical applications and detailed discussion of high strength (60,000 p.s.i. and up) irons.

Both books will gladly be sent without charge on request.

MOLY
Climax Mo-lyb-den-um Company
500 Fifth Avenue · New York City

▲ Mention Item **NED-4393** when writing ▲

HELP WANTED?
IN SHEET METAL FABRICATION!

Call on experience

● In letting your subcontract work you are interested in: facilities, prompt deliveries, competent engineering, financial backing—*and the subcontractor's ability to assure quality at a satisfactory price.* All-Steel-Equip's ability to meet these requirements have led scores of prime war contractors to depend on them for the production of metal parts or finished products.

We have three plants—completely equipped with modern machinery for high-speed shearing, forming, stamping, welding and finishing.

A-S-E is experienced—for 30 years we have manufactured metal specialties as well as standard lines of products for many of the largest concerns in the country.

A-S-E employees are experienced craftsmen, assuring fast yet careful work. A highly competent and arge engineering force is at your service.

Be sure to have full information before your needs arise. Send for the free folder showing A-S-E facilities for fabrication from 10 to 24 gauges. Send blueprints for prompt price quotations.

Hundreds of forming and stamping dies are available for making special shapes and forms.

Modern equipment, trained mechanics in three plants provide capacity, efficiency and speed.

ALL-STEEL-EQUIP COMPANY, INC.
109 John Street, Aurora, Illinois

☐ Send me the folder showing the facilities and production capacity of the three All-Steel-Equip Company Plants.

☐ Have an A-S-E representative call.

Name.....

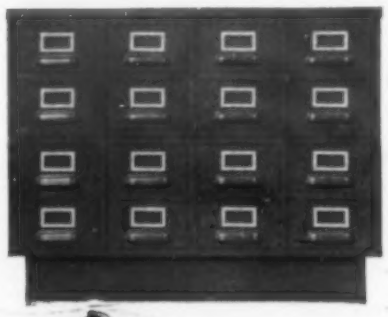
Address.....

City..... State.....

▲ Mention Item **NED-4394** when writing ▲

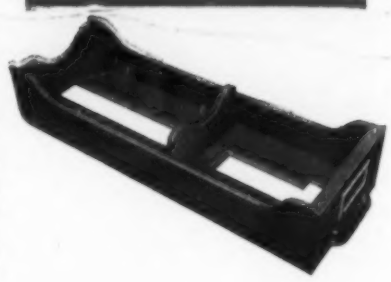
TABULATING CARD FILES

Made of selected hardwood and designed to give satisfactory service, these Perma-Bilt tabulating card files are made to handle business machine and other cards in sizes of 3 x 5, 6 x 4, 8 x 5 and 9 x 6.



Units are made in sections of 8 drawers. Each section has capacity of 26,400 cards.

Added feature is Sta-Tite compressor which is only ⅜-inch thick and is positive in operation. It will hold cards in place even if file drawer is turned upside down.

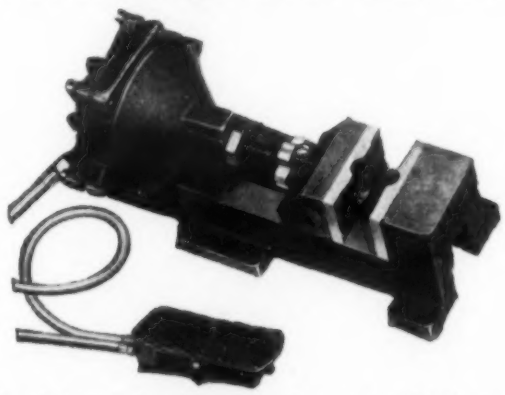


These units have been designed to replace metal card files which are no longer made. Manufacturer can supply Tab-Trans files for non-current records. Where standard files can not be used satisfactorily, special files will be developed to meet any given requirements. Made by **The Planned Business Equipment Co.**, 1422 Euclid Ave., Dept. NED, Cleveland, O.

▲ Mention Item **NED-4395** when writing ▲

PNEUMATIC VISE

Designed to speed up production and cut time, labor and cost in war plants, assembly lines and machine shops, this Speedy air vise is equipped with foot control. This leaves



both hands free to handle work. As many as 1200 operations per hour are said to have been made in vise.

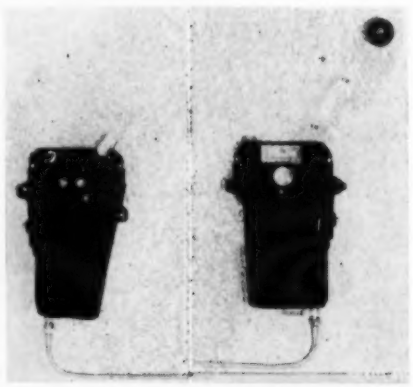
Unit is operated by multiple type diaphragm instead of piston. Movable jaw has maximum travel of ½ inch, gripping with force of 15 times air line pressure. Adjustment screw enables operator to set movable jaw anywhere up to its maximum opening of 3 inches.

Vise can be attached to air line or individual compressor and can be used on pressures up to 150 pounds per square inch. It can be used on drill presses, milling machines, shapers and by assemblers. Unit is furnished complete with air hose, foot controls and fittings, ready for immediate use. Made by **W. R. Brown Corp.**, Dept. D-11, 5720 Armitage Ave., Chicago, Ill.

▲ Mention Item **NED-4396** when writing ▲

HYDRAULIC CONTROL

Delivering whatever motion that is imparted to transmitter handle to receiver lever, this Exactor hydraulic control has no lost motion. Only connection required between two units is single tube which can be bent to avoid intervening objects, or run through



bulkheads with ease and safety. Device operates upon fluid displacement principle. Motion of handle on transmitter forces definite quantity of liquid to receiver. This liquid forces receiver piston upward, causing lever to move through equal arc.

Trunk type pistons are used and special packing glands prevent fluid leakage. Single interconnecting tube is filled with liquid which has low freezing point. One suction stroke on control will deliver 100 inch-pounds of torque. On pressure stroke, control delivers two to three times this amount.

Applications include use for throttle, mixture, supercharger, landing lamp, air screw or valve control in aircraft. It is also applicable for control and operating functions on marine, railroad and industrial equipment. Unit is accurate to fraction of degree, will not vibrate from set position and requires only single ¼-inch tubing. Made by **Sperry Products, Inc.**, 1505 Willow Ave., Hoboken, N. J.

▲ Mention Item **NED-4397** when writing ▲

AMAZING SPEED! **QUICK-FLOOR**
PATCHES – REPAIRS – COVERS
CONCRETE FLOORS
in the midst of traffic

JUST PLACE, PACK AND USE IMMEDIATELY!

✓ **NO TRAFFIC INTERRUPTION** Truck wheels set it
✓ **NO WAITING OR DRYING TIME** Ready for instant use
✓ **NO CUTTING AWAY** Patch any hole "as is"
✓ **NO MIXING** Use direct from drum
✓ **LASTS FOR YEARS**

Write for circular and prices

HOW GOOD IS QUICK-FLOOR? These firms repeat regularly: Republic Steel Corp. Anchor Hocking Glass Co. Inland Steel Co. Harnischfeger Corp. Pittsburgh Plate Glass Co. Robert Gair Co. Appleton Electric Co. and many more

DURA-TRED COMPANY
3510 CARROLL AVENUE PHONE VAN BUREN 2171
CHICAGO, ILLINOIS

▲ Mention Item **NED-4398** when writing ▲

Scientifically planned conveyor systems can—and *will*—help you produce war materials faster! Anticipating your need for these "speed conveyors" the first unit of our own big expansion program, resulting in a 25% increase in our production capacity has been completed! A second unit is almost ready for production. Whatever your product handling problem, write today, without obligation, for a discussion with an A-F Engineer.

THE ALVEY-FERGUSON CO., 85 Disney Street, Cincinnati, Ohio

CONVEYORS A-F MACHINERY
ALVEY-FERGUSON
SCIENTIFICALLY PLANNED *Conveyors*

▲ Mention Item **NED-4399** when writing ▲

ILLUMINATING MAGNIFIERS SPEED INSPECTION WORK

Reduce Fatigue — Cut Mistakes

★ Speed up inspection and assembly of large or small parts in your plant with this new SURTY portable Fluorescent Illuminating Magnifier. Permits high precision inspection and handling of small parts under powerful magnifying glass, illuminated by more than 150 foot-candles at point of operation. Metal shield fitted with 4½" diameter lens, conceals two fluorescent tubes for cool, glareless, shadowless light. Mounted on double-jointed adjustable bracket, with heavy metal base.

★ **WRITE** *for descriptive circulars and prices on complete line of SURTY Illuminating Magnifiers, transparent grinder shields, and point-of-operation illuminating equipment.*

THE SURTY MANUFACTURING COMPANY, Inc.
Manufacturers of Industrial Safety and Inspection Equipment
4137 WEST KINZIE ST. NEVada 4000 CHICAGO, ILLINOIS

▲ Mention Item **NED-4400** when writing ▲

Carpenter
WELDED STAINLESS TUBING

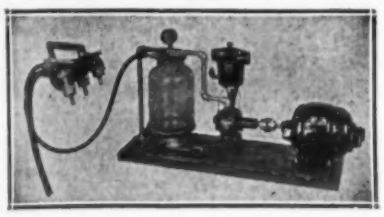
SPEEDS THE PRODUCTION OF Synthetic Rubber, High Octane Gasoline, "Gunpowder" and Chemicals that are vital to our war effort. If you would like to know more about how this corrosion-resistant tubing can help to speed processing and eliminate many maintenance headaches, ask for a copy of Carpenter's Welded Stainless Tubing Data Book.

FABRICATORS also use this tubing to boost the output of mechanical and structural parts. Often, flanging, tapering, expanding, etc. is sufficient to produce the finished part. Uniform wall thickness permits using lighter gauges for strength and rigidity. For complete data on shapes and grades available to meet Army and Navy "specs" — write on your company letterhead for a copy of this Data Book.

THE CARPENTER STEEL COMPANY
Welded Alloy Tube Division
KENILWORTH, NEW JERSEY

▲ Mention Item **NED-4401** when writing ▲

CONVERTING from TIN to GLASS?



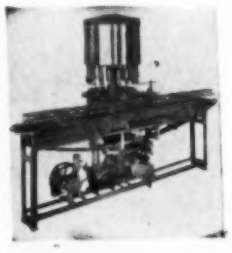
We Have The FILLER for You!

★

This small, portable bench unit shown here handling from vials to gallons is very useful for full production in medium sized plants or odd lot production in larger plants. Requires no overhead tanks. Fills directly from barrel or drum. Suitable for bench or tray work and will also fill containers in original cartons.

★

Larger units likewise available in several types. The line includes a FULLY AUTOMATIC ROTATING GRAVITY VACUUM FILLER which handles from gallons down to smallest containers. For fast production on automatic lines this is the machine to use. The GRAVITY VACUUM SYSTEM is ideal for foamy products packaged in glass or tin. Fills heavy slow flowing products at a fast rate.



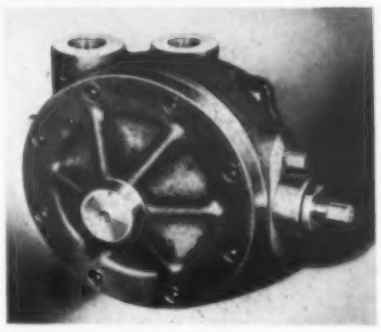
Present your filling problems for prompt solution to

SCIENTIFIC FILTER & EQUIPMENT CO.
2 Franklin Square New York City, N. Y.

▲ Mention Item **NED-4402** when writing ▲

▲ Mention Item **NED-4403** when writing ▲

VARIABLE PUMP



Equipped with mounting considered as standard by most pump manufacturers, this vane-type variable delivery pump may be used as replacement unit or as original equipment without changing current designs. Delivery of unit is variable from 0 to 4 gallons per minute and operating pressure is 1000 pounds per square inch. Top of 3500 pounds per square inch for short-intervals is possible.

Additional feature is balance of individual vanes. Being bevelled on two edges as well as on outer stator side, design results in marked reduction of wear, elimination of overheating and increase of operating efficiency.

To permit maximum selection of adjustment, split stator instead of conventional solid ring is employed. Adjustment and limit screws on outside of housing allow for varying delivery to any amount required within operating range. Made by **Hydra-Motive, Inc.**, 221 St. Aubin Ave., Detroit, Mich.

▲ Mention Item **NED-4404** when writing ▲

CONVECTOR CABINETS

To be used in place of all-metallic convectors and radiators, this non-metallic cabinet convector is constructed entirely of materials not listed as critical. Except for screws, non-metallic materials are used throughout. Side and top panels are fabricated from rigid fibre board. Supporting members provided at corners are of hard wood.

Element of this unit is constructed of steel fins and tubes. This small amount of metal used is said to be equivalent to 1/5 of that used in ordinary radiator.

Two cabinet types are available. One type is provided for wall suspension and other type is of free standing floor design. Circular designed grilles are punched in sloping tops of both cabinets. Made by **The Trane Co.**, 2018 Cameron Ave., La Crosse, Wis.

▲ Mention Item **NED-4405** when writing ▲

STAPLING HAMMER

For work in building field, applications of this H-3 stapling hammer include fastening asphalt shingles or standard plywood roofing, asphalt side walls, heavy insulation, built-up roofs, soundproofing material, metal laths, wire mesh and plaster board. Staple can be driven with single one-hand blow, freeing operator's hand, adding inches to normal reach and eliminating necessity of holding tacks or nails in mouth or pocket. This light weight hammer requires no more equipment than is indicated in illustration.

Since hammer frame is made of metals listed as critical, it is limited to war production work in building field. Made by **Bostitch Inc.**, 41 Division St., East Greenwich, R. I.

▲ Mention Item **NED-4406** when writing ▲

BLACKBOARD

Equipped with writing surfaces on both sides, this blackboard is suggested for use in training classes for inspectors, machine operators, foremen and for posting production figures. Unit is said to be accepted as standard for New York City Board of Education.

This double-faced unit is shipped knocked down and is easily assembled. It is available in 10 sizes ranging from 2 by 3 feet to 4 by 6 feet. Writing surface can be furnished in natural slate or in Nucite glass and in green, black or ivory. Made by **New York Silicate Book Slate Co.**, 421 Seventh Ave. New York City.

▲ Mention Item **NED-4407** when writing ▲

CLEAN MACHINES SPEED PRODUCTION

Vacuums — Blows — Sprays

USE IDEAL "Tank-Type" ELECTRIC CLEANER

A clean machine operates faster, better; lasts longer; is not likely to fail and cause shutdowns. Remove light or heavy dirt and grit from your machines with this IDEAL Portable "Tank-Type" Electric Cleaner. Picks up bench and machine litter, metal cuttings, etc.

Heavy particles are trapped in tank—protecting motor, fan and bag. SUPER-POWERED—Portable! Full 1 H. P. Motor. Air Velocity, 24,200 ft. per minute.

This Power Unit is Detachable from tank, for use as a powerful hand portable cleaner; ideal for cleaning hard-to-get-at places. (Also available as a separate cleaner).

Write for Free Descriptive Literature

IDEAL COMMUTATOR DRESSER COMPANY
1032 Park Avenue Sycamore, Illinois
Sales Offices in All Principal Cities
In Canada: Irving Smith, Ltd., Montreal, Quebec

▲ Mention Item **NED-4408** when writing ▲

ONE HAND CONTROL
One hand controls the CM Comet—the other is FREE to guide the load into position.

★

SPEEDY
Fast, positive lifting and lowering of load. Requires but a minute or two to hook up.

★

ECONOMICAL
Low initial cost...low operating cost. Just a few cents a day operates the Comet.

★

PLUG IN ANYWHERE
No special outlets or wiring needed...just plug into the nearest outlet—then hoist.

Production is accelerated by using Comet Hoists as trolleys, monorails and cranes to lift and transport loads overhead. Step up efficiency, save floor space and cut down "hidden" costs with a CM Comet.

WRITE FOR BULLETIN

CHISHOLM-MOORE HOIST CORP.
(Division of Columbus-McKinnon Chain Corp.)
160 FREMONT AVE. TONAWANDA, N. Y.
Branch Offices: NEW YORK • CHICAGO • CLEVELAND

▲ Mention Item **NED-4409** when writing ▲

GEARS MADE TO ORDER

PRODUCTION CAPACITY WORKING ON WAR TIME SCHEDULES . . .

• We are busy, yes, running full shifts 168 hours a week, bending every effort to work in "must" jobs to help our customers meet war goods delivery schedules. All of our production is on gears only . . . straight bevel gears, spiral bevel gears, hypoid gears, spur gears, helical spur gears, herringbone gears, worm gears, worms and differentials for trucks, tractors, tanks, boats and all kinds of agricultural, construction and industrial machinery.

FAIRFIELD Mfg Co.
317 S. Earl Ave., LAFAYETTE, INDIANA

▲ Mention Item **NED-4410** when writing ▲

THEY ALSO SERVE

DUPOR
Twin Filter
RESPIRATOR No.10

. . . performs a vital service in America's "all-out" industrial program . . . used for nuisance gases where light concentrations of organic vapors prevail. (Not a gas mask.) Write for complete DUPOR catalog!

Sample postpaid $4.50

H. S. COVER, Chippewa St., South Bend, Ind.

▲ Mention Item NED-4411 when writing ▲

SABIN BARREL TRUCK for STEEL DRUMS, WOOD BARRELS, etc

ONE MAN

SAVES TIME, LABOR

Type L-3

TRUCKER HANDLES UP TO 1,000 LBS. WITHOUT HELPERS. He simply places an adjustable hook over top chime of drum or barrel, pulls the handle, presses foot pedal and truck is loaded. High grade roller bearings insure easy mobility. THIRD-WHEEL, housed in foot pedal, permits truck to stand alone when weighing or if trucker is interrupted while moving load.

●Unheaded wood barrels, in poor condition, can be handled by using a circle chain thrown around barrel to hold it together, instead of regular hook.

Write for descriptive Bulletin TODAY!

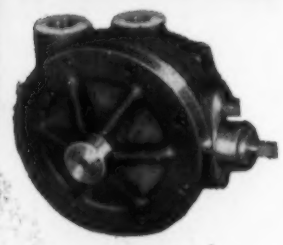
Placing loading hook over top chime of drum.

Picking up load automatically and smoothly.

The Sabin Machine Co.
6538 Carnegie Ave.
CLEVELAND, OHIO

▲ Mention Item NED-4412 when writing ▲

SHOCK-PROOF PUMP
features
Variable Delivery
and
"Standard" Mounting



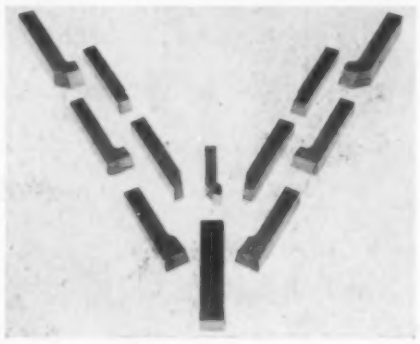
● Infinitely variable delivery ranging from 0 to 4 gpm., at operating pressures up to 1,000 lbs. psi., and a type of mounting considered as "standard" by most manufacturers of hydraulic pumps are features of the HYDRA-MOTIVE vane-type hydraulic pump.

Designed especially for low volume—high pressure performance, the pump is virtually shock-proof. It will operate up to 3,500 lbs., psi. for short intervals and is completely balanced. Vanes of unique and patented design permit additional balancing for elimination of overheating, and for automatic compensation for wear. The "standard" mounting, together with reasonably prompt shipments, permit the immediate adoption of the pump for either new equipment or as replacement for existing pumps. Drive shaft of $1\frac{1}{16}$ inch diameter extends $1\frac{5}{16}$ inches beyond housing. Rotation: Either rotation is available. Housing is of specially cast bronze. Rotor, stator, vanes etc., are of hardened and ground steel. Oil line connections are for standard SAE fittings. Adjustment for variation in delivery is by means of screw on outside of the housing.

HYDRA-MOTIVE
INCORPORATED
221 St. Aubin Avenue, Detroit, Michigan

▲ Mention Item NED-4413 when writing ▲

TOOL SHANKS

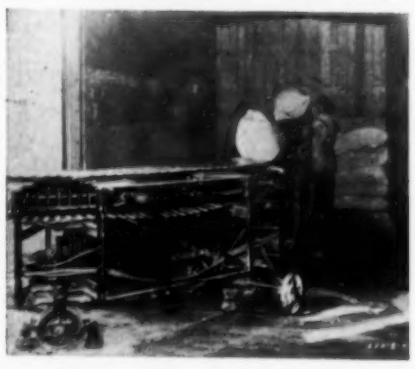


Cast to shape from high tensile strength Meehanite, these Victory tool shanks have rake and clearance angles included on them for quick and economical tipping with carbide. Tools are of special value for those shops equipped to affix their own tool tips.

Meehanite alloy of which shanks are made, uses no minerals which are on strategic list. This alloy does not load grinding wheel as rapidly as steel, and it is said to have twice the vibration damping capacity of steel. Heat conductivity is rapid, thus assuring cooler tips and longer wear. Made by **The Copper-Bessemer Corp.**, Mt. Vernon, O.

▲ Mention Item **NED-4414** when writing ▲

CAR LOADING CONVEYOR



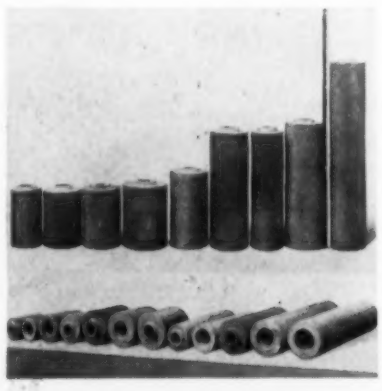
Equipped to handle bags, boxes, cartons, cases and packages of all types, this V-3 Loader - Unloader is self-powered. Conveyor belt is comprised of overlapping metal slats that curve horizontally as well as vertically.

This 25-foot long unit is so designed that delivery end for loading cars can be elevated to cope with rising stacks in car. Frame is hinged and sectional. Operator can control movements of unit either in or out of car as loading or unloading progresses.

Ten 100-pound bags can be handled per minute with one man operating. Loading begins moment loader passes over gangplank as it takes bags with it from chute into end of car. At end of car, conveyor is started and continues in operation until car is filled. Made by **Manierre Engineering & Machinery Co.**, 759 N. Milwaukee St., Milwaukee, Wis.

▲ Mention Item **NED-4415** when writing ▲

LADLE SLEEVES



Designed for use with hot metal ladles, these Natco sleeves are available in lengths as long as practicable. Units are used in making up of stopper rod assemblies in steel mill or foundry. Use of these longer length sleeve brick reduces probability of rod joint failure by an estimated 50 to 70 per cent.

Formation of air pockets in clay during mining is eliminated by deairing process. This produces material of uniform density, free from laminations such as those found in materials formed by pressing process. Samples will be sent by manufacturer. Made by **National Fireproofing Corp.**, 202 E. Ohio St. N. S., Pittsburgh, Pa.

▲ Mention Item **NED-4416** when writing ▲

HYDRAULIC PUMP

Embodying modern principles of design and construction, this six-plunger horizontal hydraulic pump is equipped so that all moving parts are pressure lubricated. Connecting rods

run in continuous bath of oil. Roller bearings are used throughout. Maximum capacity of pump is 400 horsepower. Herringbone gears are used to drive pump. Unit is compact in arrangement and is particularly adaptable for accumulator systems.

Pumping unit can be equipped with built-in bypass valves or safety valves, as may be desired. Made by **Charles F. Elmes Engineering Works**, 211 N. Morgan St., Chicago, Ill.

▲ Mention Item **NED-4417** when writing ▲

Downs Safety Plate Grips

▲ Mention Item NED-4418 when writing ▲

FOREDOM FLEXIBLE SHAFT MACHINES Solve Many Production and Maintenance Problems

Model illustrated is FOREDOM No. 340. Comes with either foot or hand-operated rheostat at $45.70. (Available with suspension-type motor, No. 240 at $43.20, including foot rheostat). Other models as low as $23.50.

In the making of an intricate die or mold . . . in the de-burring, finishing, cleaning, polishing, etc. of small irregularly-shaped parts, or in the removing of high spots on gears (WITHOUT an expensive DISASSEMBLY and RE-SET) . . . . in any one of many similar tasks—you can rely on a FOREDOM to do a better and quicker job.

These features combine to make FOREDOM MACHINES the most versatile of war plant aids: 1) Four types of interchangeable handpieces, including sizes as small as a pencil; 2) A choice of suspension or bench type; 3) A wide range of accessories. For close corner work FOREDOMS have no equal.

SERVING AT VITAL SPOTS IN LEADING WAR PLANTS

Many production men are spotting these general utility FOREDOMS at convenient points about their plants, particularly at EACH POINT OF FINAL ASSEMBLY OF SMALL PARTS. FOREDOM MACHINES are used on metal, plastics, glass, wood, porcelain, etc. Ideal for identification-marking of products and tools. Less fatiguing to women operators. Hundreds of war plants are eliminating time-taking hand jobs with FOREDOMS. These include: Ford, General Motors, Bendix, Westinghouse, Warner, Allis-Chalmers, Remington Arms, Curtiss-Wright.

Order from your supply house, or direct.
Write for complete Catalogue No. 368

FOREDOM Electric Co.
27 PARK PLACE NEW YORK, N. Y.

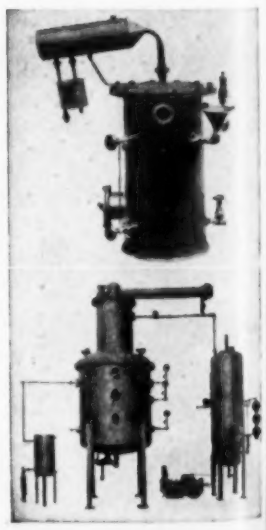
▲ Mention Item NED-4419 when writing ▲

SAVE SOLVENTS

with

ARTISAN RECOVERY STILLS

Batch or Continuous Operation



Help the national production effort by recovering solvents » » » Call on ARTISAN ENGINEERS to assist in SAVING SOLVENTS that are difficult to buy and are needed in your production » » » ARTISAN ENGINEERS are experienced in the design of solvent recovery apparatus » » » Many companies now saving essential solvents with ARTISAN EQUIPMENT » » » Small, batch stills available from stock.

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11 Sullivan Square Boston, Mass.

▲ Mention Item NED-4420 when writing ▲

DUSTKOP

STOPS DUST

from

Tool, Surface, Cutter and Internal Grinders

• Entirely self-contained and independent of any centralized dust collecting system, the low cost DUSTKOP dust collector has G. E. motor, multiple-blade fan and renewable spun-glass filter complete. Dust-laden air, pulled from grinding wheel of this precision-type surface grinder, is cleaned and returned to the room. Flexible metal hose permits easy raising, or lowering of wheel.

• DUSTKOP requires only a few minutes and no tools for installation. Portability permits moving with equipment for expansion. Now in wide use in war production plants all over the country, standard unit DUSTKOPS are available for prompt shipment on high priorities. Ask for quotation now. Mention the equipment you want to exhaust and we'll tell you what to use.

AGET-DETROIT MFG. CO.

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MASTERCRAFT MILLING AND LAYOUT TABLE

CONVERTS The DRILL PRESS into a MILLING MACHINE Applied or Removed IN ONE MINUTE

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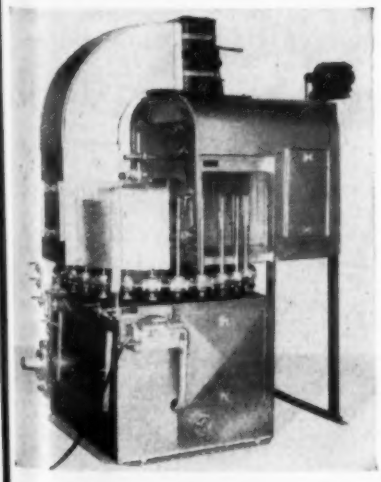
▲ Mention Item NED-4422 when writing ▲

SPRAY EQUIPMENT

AUTOMATIC OR MANUAL OPERATION



★ We make spray equipment to handle all applications.

The machine illustrated sprays and dries the inside and outside of small shells, boosters, grenades, etc., at the rate of 1000 an hour.

Let us know your requirements. We shall be glad to quote.

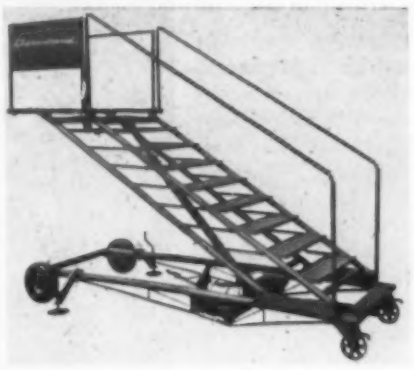
Send for Catalog 80

ECLIPSE AIR BRUSH COMPANY
309 Park Avenue
Newark, N. J.

ECLIPSE

▲ Mention Item NED-4423 when writing ▲

ELEVATING PLATFORM



Adaptable for servicing operations on aircraft, assembly in industrial plants and other work requiring adjustable elevating platform, this Aerostand is hydraulically operated. Height range is from 3 to 10 feet above floor or ground. Stabilizing braces resting on large steel pads permit solid footing on soft or uneven surfaces and assures equalization of working platform.

Guard rails are removable to form overhanging extension. Platform is raised or lowered easily by hydraulic cylinder and is equipped with mechanical safety pin for maintaining desired level. Base measures 4 by 11 feet, assuring stability even when platform is fully raised.

Unit is equipped with swivel casters and pneumatic tired wheels. In addition to mobility around plant, it can be towed by any car or truck through use of telescopic tow bar. Made by **Pacific Engineering Corp.**, 3123 San Fernando Rd., Los Angeles, Calif.

▲ Mention Item NED-4424 when writing ▲

FINGER PROTECTORS

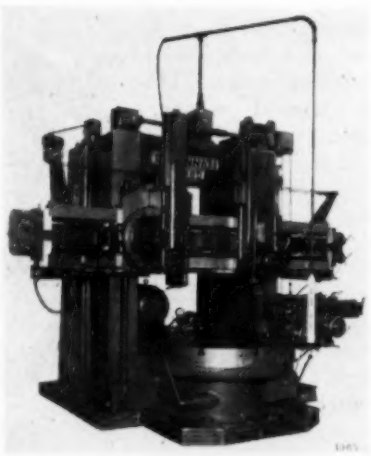
Replacing makeshift devices, these three chrome leather finger cots afford dependable protection for operators who must handle small, rough objects or hot articles which are

not large in size. Short type No. 1000, at left, is recommended for operations in which only one or two fingers need to be protected, or where there is only intermittent finger hazard.

Tie-on No. 1001 type, center, is exceptionally large and can be used as protection for finger or thumb that is bandaged. Tie-on feature makes it applicable for wider variety of uses. No. 1688, at right, is two finger and thumb protector. It is intended for use on operations where several movements require finger protection, while succeeding movements require accuracy and sense of touch of bare hand. Made by **American Optical Co.**, 1492 Mechanic St., Southbridge, Mass.

▲ Mention Item NED-4425 when writing ▲

VERTICAL BORING MILLS



Available in 54 and 64-inch models, these Hypro vertical boring and turning mills incorporate features formerly included only on larger and more expensive machines. Table has extra depth and is mounted on anti-friction bearings supported by flat track. Rapid traverse is provided for each head. Bed and speed box is of one-piece construction.

Table gear has wide face. Transmission gears are of heat treated alloy steel and all shafts are fitted with bearings. Pyramid type housings have long base and broad face. Fine adjustment is provided through use of ratchet handles on cross and down feeds. Meehanite iron rams are equipped with forged steel tool holders. Square turret tool holder on side head is of 12-position type. Feed box is bolted to each end of box form cross rail.

Feed box contains feed, rapid traverse and reversing mechanism. Graduated scales are provided on cross rail and on all rams. Main drive, table and spindle are lubricated automatically. Power for raising or lowering rail is transmitted from separate constant speed motor mounted on box arch and controlled by push button pendant control.

Elevating mechanism of rail has limit switch which stops drive when rail reaches its maximum height. Turret head can be added to rail. Thread cutting attachments are available for any or all heads. Made by **The Cincinnati Planer Co.**, 3122 Forrer St., Cincinnati, O.

▲ Mention Item NED-4426 when writing ▲

4 FEATURES OF L & N OPTICAL PYROMETER

At least four specific features make it easy to use the L&N Optical Pyrometer:

1. It reads directly in degrees. No more conversion tables; no more "thinking" in milliamperes while you work in degrees.
2. It's a third lighter than the older L&N Optical.
3. It's faster—far faster for a novice; noticeably faster for a veteran user.
4. It's even more accurate than the older L&N Optical—which was the standard of accuracy among opticals. And it's a potentiometer—the modern standard for accurate measurement of high temperatures.

The L&N Optical Pyrometer is described in Catalog N-33D, which will be sent on request.

LEEDS & NORTHRUP COMPANY, 4905 STENTON AVE., PHILA., PA.

LEEDS & NORTHRUP

MEASURING INSTRUMENTS · TELEMETERS · AUTOMATIC CONTROLS · HEAT-TREATING FURNACES

Jrl Ad N-33D (2)

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If you need any type of standard or special hinges for war work . . . *and need them in a hurry* . . . then write, phone, or wire to Veeder-Root. This complete, modern plant is equipped with the latest high-speed automatic machines to turn out any design in any quantity, in any plate or finish desired. And that goes for anything from the smallest jewelry hinge to the longest continuous types. So send your sketches, specifications, and preference rating to Dept. NC *today*, and you will get prices and dates by return mail. Write HINGE DIVISION.

VEEDER-ROOT

HARTFORD, CONNECTICUT

▲ Mention Item NED-4428 when writing ▲

▲ Mention Item NED-4429 when writing ▲

Now TURCO New

STRIPPER L-595

The New Non-Inflammable Paint Remover

Turco Stripper L-595 answers the demand of safety engineers, for a remover which will completely eliminate fire and health hazards in paint stripping. It fulfills every requirement for safety, speed, economy and ease of application.

Wax-free (saves after-cleaning operation); non-volatile; removes glue; will not attack aluminum, steel, copper, or any other metals; clings to vertical surfaces; removes paint from wood without bleaching or raising the grain; safe in the hands of inexperienced operators; can be brushed or sprayed on.

For free Bulletin No. A672-25-92 and full information, send this advertisement with your name, address, firm and title to . . .

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▲ Mention Item **NED-4430** when writing ▲

Sanymetal

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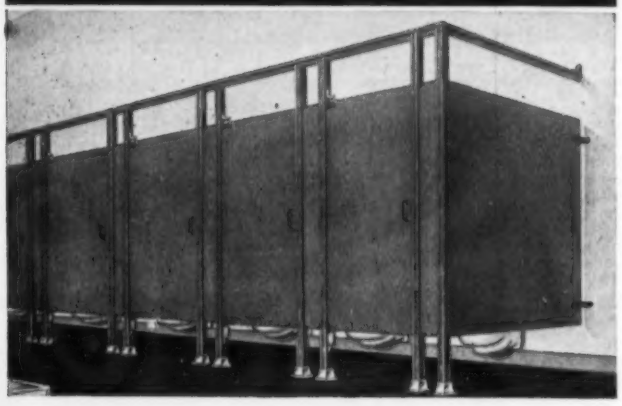
TOILET COMPARTMENTS
With Complete Door Hardware and Partition Fittings
NOW AVAILABLE • READY TO INSTALL



Keep Toilet Facilities for Factory Workers, Both Women and Men, Adequate and Up-to-date. In developing these All-Wood Toilet Compartments to meet your wartime needs, Sanymetal Engineers have retained the exclusive design and construction features of Sanymetal Steel Toilet Compartments. This assures a strong, rigid, grief-free installation. Doors, partition panels, posts and headrail bracing—all of wood—together with complete door hardware and partition fittings arrive on the job all ready for quick and easy installation. No delays for assembling materials or experimental erection. For quick action look under "Partitions" in your phone book for Sanymetal Representative in your locality,—or write direct.

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USE THE COUPON TO GET COMPLETE INFORMATION ON SANYMETAL WARTIME TOILET COMPARTMENTS OF ALL-WOOD CONSTRUCTION—THIS CIRCULAR JUST OFF THE PRESS!

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Please rush by return mail your new circular on Sanymetal Wartime All-Wood Toilet Compartments

NAME _____
POSITION _____
FIRM _____
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CITY _____ STATE _____

▲ Mention Item **NED-4431** when writing ▲

PORTABLE SERVICE LIGHT

Adjustable from 30 inches to 7 feet, this portable fluorescent service light was designed to project light into many inaccessible places. This unit has adaptability for servicing planes at night and for industrial plant use as well.

Upward or downward, horizontally or vertically, or in any angle of 180 degree arc, thus unit is adjustable without use of tools and will illuminate any darkened area with long source of cool fluorescent light that permits close working arrangements and eliminates shadows. Well balanced cast iron base makes light pracitically impossible to upset.

Other features include power factor correction for two 48-inch 40-watt fluorescent lamps, baked enamel reflector, and if desired, screen will be supplied at extra cost to protect lamps. Made by **Lumidor Mfg. Co.**, Los Angeles, Calif.

▲ Mention Item **NED-4432** when writing ▲

TOOL HOLDER

Reducing tool changing time to approximately 5 seconds, this tool holder consists of tool post which can be fitted on any engine lathe carriage compound rest. Detachable tool heads fit into cylindrical member which is clamped into tool post.

Standard high speed tool bits used for boring, turning, threading, facing or forming are fastened into heads and each bit remains in place in head. Drills and reamers can also be used.

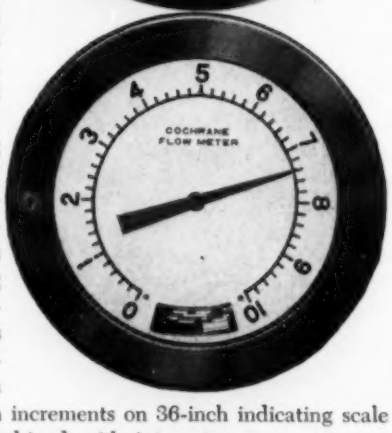
If particular tool must be removed and then reinserted in tool holder, as for example when particular working operation is interrupted by other work, holder permits original tool to be reinserted in tool holder in exactly same position it originally occupied.

In actual practice, holder is said to make possible a reduction of 35 per cent in machining time on many operations. Four sizes fit all standard makes of engine lathes from 10 to 24 inches. Made by **Lane-Wells Co.**, 5612 Soto Street, Los Angeles, Calif.

▲ Mention Item **NED-4433** when writing ▲

GAS FLOW METER

Accuracy, freedom from maintenance and complete safety are claimed for this high pressure flow meter that features adaptation of ring balance. It has no float, stuffing box or pressure-tight bearing. Unit is entirely closed and ring balance has no internal working parts.



Mercury sealed manometer is stainless steel ring 15 inches in diameter. Ring is balanced on knife edges at its geometric center. Partition at top of ring is formed of solid stainless block. Nickel tubing connects top of ring to center of rotation where it joins free ends of twin 6-inch nickel torsion tubes.

By this design, ring tilts 10 degrees for full differential range measurement which may be between 4 and 9 inches of mercury depending on cam weight supplied. Cam extracts square root relationship so as to express flow directly in uniform increments on 36-inch indicating scale which may also be combined with integrator.

These meters are tested under 7500 pounds per square inch and are said to be successful for measuring of nitrogen, hydrogen and ammonia gases at pressures of approximately 5000 pounds per square inch. Made by **Cochrane Corp.**, 3143 N. 17th St., Philadelphia, Pa.

▲ Mention Item **NED-4434** when writing ▲

Simple, Sturdy
CJB AHLBERG
Ball Bearing
PILLOW BLOCKS

1. Precision self-aligning ball bearing.
2. One-piece sturdy housing.
3. Removable end cap.
4. No drag labyrinth seals.
5. Simple mounting wrench.

THESE CJB pillow blocks are not a new development, but a proven design, with a ten year service background.

Their compactness and simplicity make them ideal for light and normal service, where a reliable inexpensive bearing is required.

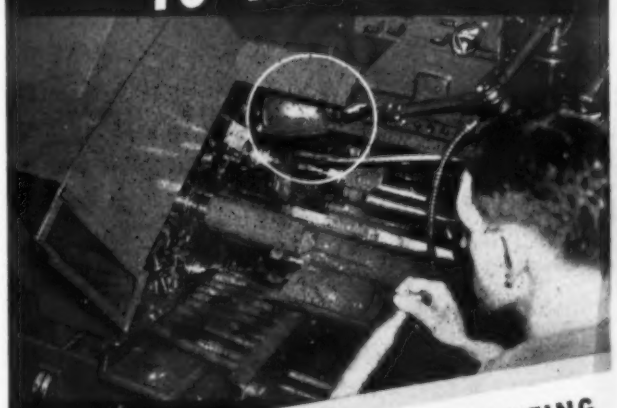
The full self-aligning, precision type ball bearing, is mounted in a one piece, Parkerized, housing. Seals, to protect the bearing and retain lubricant, are non-wearing Neoprene rings, which turn with the shaft and float in the housing.

This labyrinth type of seal is frictionless, long-wearing, and exceptionally effective.

AHLBERG BEARING COMPANY
Manufacturers of CJB Master Ball Bearings
3042 West 47th Street - - - Chicago, Ill.

▲ Mention Item **NED-4435** when writing ▲

—Speedy Ways to MORE WAR



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Keeps Worker's EFFICIENCY HIGH

Quick, accurate, comfortable "seeing" is your workmen's most vital tool. On the efficiency of their eyes depends the speed and quality of their production. For maximum eye efficiency the worker needs Balanced Lighting—Localites for high intensity illumination directed on his job — Generalites for horizontal illumination of the working area background. As in the shell case machining operation pictured above, and for thousands of machine, assembly and inspection jobs. Fostoria Balanced Lighting is speeding war production—giving workmen the high "seeing" efficiency so vital to do their jobs with greater quickness, accuracy and minimum fatigue.

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Mechanized warfare demands mechanical parts infinite in variety and inexhaustible in quantity. We are proud to supply such parts to the utmost of our skill and capacity.

SPECIAL BOLTS, NUTS and STUDS
DIE SINKING and DROP FORGINGS
SCREW MACHINE PRODUCTS
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SPRAYED METAL EQUIPMENT

Estimates gladly submitted. Send samples or blueprints. Catalog on request.

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148 West River St., Providence, Rhode Island
Serving American Industry Since 1834

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PRODUCTION-Quicker

INFRA-RED PROCESS for BETTER BAKING AND DRYING

INDUSTRIAL fostoria SERVICE

Keeps Production MOVING FASTER

Minutes instead of hours for the drying of paint on airplane engines. As pictured above, one spray coat and two spray finish coats are now baked at once in only 5 minutes.

Today, many operations of baking, drying, dehydrating and preheating are being greatly speeded and improved by the amazing Infra-Red Process. Quickly available Fostoria Para-Sphere equipment provides the approved means to utilize this modern method for war production. And Fostoria Industrial Service provides the technical and testing service to adapt the process to individual industry requirements. Request full information, today.

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THE FOSTORIA PRESSED STEEL CORP.
Fostoria, Ohio
Fostoria Products Manufactured and Distributed in Canada by Amalgamated Electric Corp., Ltd., Toronto, Canada

▲ Mention Item NED-4438 when writing ▲

ELECTRIC POWER TRACTOR

Exerting normal drawbar pull of 800 pounds and ultimate pull of 3600 pounds, this model NTTD tractor is powered by two heavy duty tractor drive units, with two motors, which are claimed to provide maximum of traction, safety and flexibility of operation. Overall length is 84 inches, wheel base is 48 inches and height 59 inches.

Other features include four-wheel, extra large external contracting brakes, mounted on worm shaft and providing equal braking on all wheels. Frame is of heavy construction from standard plates and shapes, riveted and welded into rigid unit.

Travel is controlled by lever-operated drum type controller which is interlocked automatically with operator's seat and brake foot pedal. If controller is left in any speed position, handle must be brought to neutral, with brake released and operator seated, before power can be applied. Battery compartment can be furnished for either side or top removal of battery. Made by **Crescent Truck Co.**, 1134 Willow St., Lebanon, Pa.

▲ Mention Item **NED-4439** when writing ▲

INSPECTION MAGNIFIER

Four models of Super Sight industrial magnifiers have been developed for use on close inspection, parts assembly and precision machining operations. Model 89ZC, illustrated, has

5-inch diameter magnifying lens with head balanced to bracket which permits its use over wide bench area and in any position. It is designed particularly for inspection work, parts assembly and bench operations.

Other models include No. 95ZC with two magnifying lenses. Five-inch top lens and 4-inch lower lens are adjustable for focus. Lenses are lighted separately, permitting use of one or both lenses as required. Head is balanced to bracket. Model 89U has 5-inch lens and is fitted with safety lens to protect magnifier. Equipped with universal brackets, this type is designed for precision machining applications.

Model 44ZC has 4-inch magnifying lens, head balanced to bracket and can be used over wide bench area. It is intended for bench work and small parts assembly. Made by **Boyer-Campbell Co.**, 6540 Antoine St., Detroit, Mich.

▲ Mention Item **NED-4440** when writing ▲

VERTICAL MILLER

Adaptable to production line methods, this No. 1-14V vertical milling machine is designed especially for performing vertical milling operations on small parts. Table has simple, infinitely adjustable hydraulic feed with fully automatic cycle. Table movements are effected by convenient control lever which indicates direction of movement. Feed rates within entire range of 1 to 40 inches per minute are infinitely adjustable with graduated dials.

Table has feed in both directions, rapid traverse in both directions, automatic shift from rapid traverse to feed in either direction and automatic reverse at both ends of stroke. Practically any desired cycle can be obtained, such as milling work at one end of table while unloading and loading at other end. Dogs can be provided for intermittent milling.

Box type bed encloses motor and hydraulic actuating unit. Table rides directly on ways in bed. Both spindle head and head carriage are one-piece castings. Head carriage is adjustable vertically by screw with micrometer dial. Ten spindle speeds ranging from 115 to 300 revolutions per minute are quickly available through V-belt type drive. One or two-way positive stop with dwell can be furnished. Made by **Kent-Owens Machine Co.**, 958 Wall St., Toledo, O.

▲ Mention Item **NED-4441** when writing ▲

IT COSTS LESS—To Use

AURAND

CLEANING TOOLS

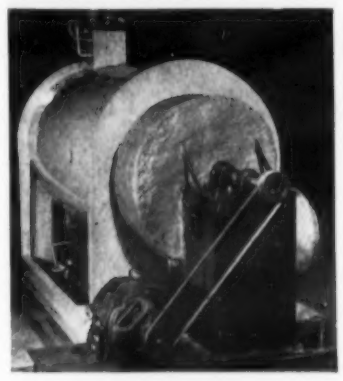
No special skill is required to use the Aurand Cleaning Tool—cutter heads are renewable — and it takes less time to do a thorough cleaning job. Aurand Cleaning Tools remove paint, scale, rust and other accumulation by powered, rotary chipping. An even depth surface is assured by an adjustable shoe control.

For Further Information Address Dept. 14

AURAND MFG. & EQUIP. CO.
2643 Colerain Avenue • CINCINNATI, OHIO

▲ Mention Item NED-4442 when writing ▲

WYO-LITE PLASTIC INSULATION covers 1500 SQ. FEET PER TON



A Circulating Heater Insulated with WYO-LITE

WYO-LITE gives you the most for your money, in addition to giving you high, permanent insulation values you get greater coverage—one ton will cover 1,500 sq. ft., 1" thick. The insulating aggregate is expanded mica made from vermiculite ore. The ore has been scientifically expanded, from 15 to 20 times in volume, in a patented furnace. In our process all unexpanded ore and foreign matter are eliminated and WYO-LITE is, therefore, 100% PURE. For many years WYO-LITE Plastic Insulation has been used for insulating all types of furnaces, boilers, ovens, dryers, fittings, hot water tanks, etc., etc. Can be easily applied by your own workmen without injuring hands.

Write for Details and Prices

WYO-LITE INSULATING PRODUCTS
4612 East 71st St. Cleveland, Ohio

1 TON of Wyo-Lite Covers 1500 SQ. FT.

▲ Mention Item NED-4443 when writing ▲

WANTED--Tough Jobs of Heating Compounds

Waxes
Compounds
Solder
Adhesives
Chemicals
Roragel
Korolac
Pitch
Asphalt
Paraffin
Oils
Resins
Marine Glue
Paint

The more difficult your problem, the more reason you should enlist Sta-Warm engineering help. Whether it's a new compound calling for unusual treatment, or an old one where greater efficiency is desired, Sta-Warm experience in heating all kinds of compounds will assuredly prove helpful. Sta-Warm will give accurate, selective heat control and maintain temperatures uniformly, resulting in greater production and lower costs. Don't hesitate to write, outlining your problem.

Sta-Warm
STA-WARM ELEC. CO.
130 No. Chestnut St., Ravenna, O.

Complete Equipment for Heating, Pouring, Conveying Compounds

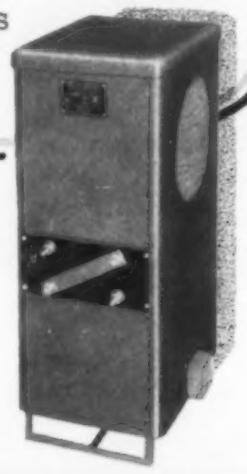
▲ Mention Item NED-4444 when writing ▲

The UDYLITE-MALLORY

Rectoplater

FOR ECONOMICAL PLATING AND ANODIZING AMPERES

(IMMEDIATE SHIPMENT!)



Available Now! Delivery from stock.

★

Adaptable to Any Plating or Anodizing Process! By grouping in series or parallel, any combination of current and voltage can be secured.

★

Economical! Low priced—no maintenance cost.

★

Dependable! Compact, sturdily built for long, trouble-free service.

★

The Machine You Want! Delivery, price, dependability—these add up to the best bargain in DC power on the market!

THE UDYLITE CORPORATION

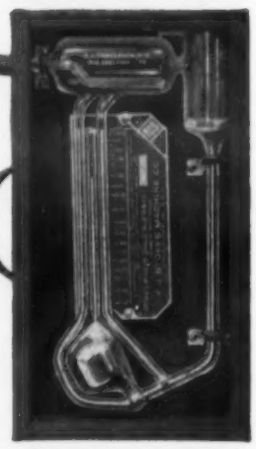
1651 E. Grand Blvd., Detroit, Mich.

New York 60 E. 42nd Street — Chicago 1943 Walnut Street — Cleveland 4408 Carnegie Ave.

▲ Mention Item **NED-4445** when writing ▲

STOKES PORTABLE VACUUM GAUGE

For Speedier, More Accurate Measurements in High Vacuum Practice



- **Rugged**
- **Compact**
- **Lightweight**

With Stokes Portable (McLeod type) Vacuum Gauges accurate readings, within the micron range, are taken in rapid succession . . . single readings in only 2 to 5 seconds. Gauges are safely portable; no danger of breakage, spilling mercury or other injury in ordinary usage. Only 2 pounds of mercury required. Swivel mounting for permanent installation. "Safety" glass cover.

Available in two models, 0 to 5000 microns (5 mm.), and 0 to 700 microns (with finest calibration 1/10 micron). Hundreds of these gauges are now in daily use. Write for Bulletin 902.

F. J. STOKES MACHINE COMPANY

5964 Tabor Road — Olney P. O. — Philadelphia, Pa.

Representatives in New York, Chicago, Cincinnati, St. Louis Cleveland, Detroit

Pacific Coast Representative: L. H. Butcher Company, Inc.

F.J.Stokes FJS Est 1895

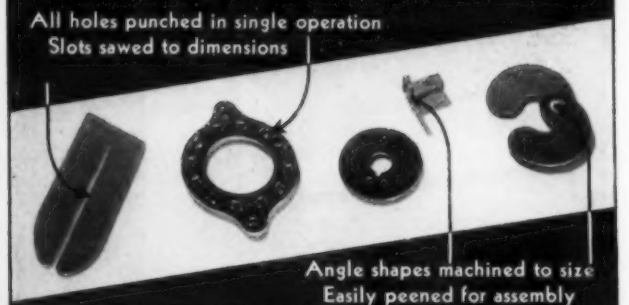
▲ Mention Item **NED-4446** when writing ▲

G-E LAMINATED PLASTICS

FABRICATED TO SPECIFICATIONS

All holes punched in single operation

Slots sawed to dimensions



Angle shapes machined to size

Easily peened for assembly

PUNCHED—DRILLED—SAWED

TURNED—TAPPED—THREADED

MILLED—PLANED—FLY-CUT

Laminated sheets, rods and tubes of G-E Textolite may be fabricated in countless sizes and shapes. Paper-, canvas-, and linen-base types available to many manufacturers for improvement of products. Write Sec. J-9

ONE PLASTICS AVENUE

PITTSFIELD, MASS.

PLASTICS DEPARTMENT

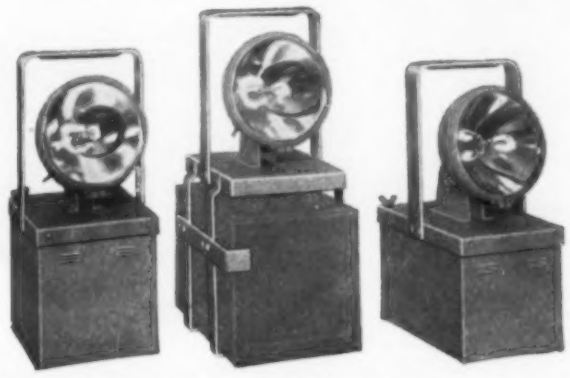
GENERAL ELECTRIC

PD-44

▲ Mention Item **NED-4447** when writing ▲

EMERGENCY REPAIR LIGHT

Used for lighting of emergency repairs of industrial plants, telephone and telegraph companies, fire departments and cargo vessels, this Damage Control Light has high intensity beam.



Lamp head assembly consists of sheet steel lamp housing to which is riveted polished channel designed for vertical positioning of lamp.

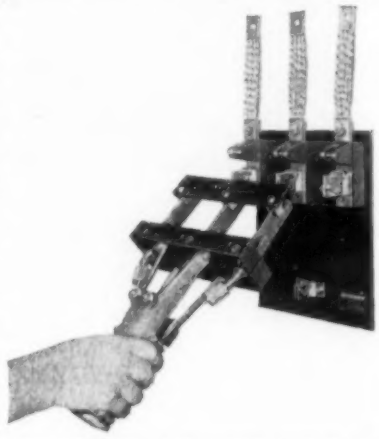
Unit is of sealed beam construction, but differs from automobile headlight in that it has clear face which transmits light without diffusion. Lamp is contained in housing, which is held in position by means of steel bezel or clamping ring, steel flanged washer and gasket.

Lamp is operated by wet cell battery that is equipped with indicator revealing just how much of battery charge has been used. Made by **The F. W. Wakefield Brass Co.**, Wakefield Park, Vermilion, O.

▲ Mention Item **NED-4448** when writing ▲

WELDING DISCONNECTOR

Handling of three or four welding machines in shipyards has been simplified through connection of heavy cables to single current source, mounting them on single frame with only one cable running down over side of ship. When ship is moved from one working position to another, cable must be disconnected at safety switch and then reconnected. Disconnector has been developed for this purpose.



Unit can be made to accommodate either three or four connector cable and is mounted inside box of safety switch. Box, 10 inches longer than standard, is arranged so that cover cannot be opened unless switch is in open position. Connecting and disconnecting are accomplished by simple series of steps.

Illustrated is three-pole, type S3K unit. All cable connectors are ground clamp type. Additional clip and blade serves to ground spider casting when switch is closed. Three flexible braids are atttached directly to terminal pads on load side of safety switch. Made by **Burndy Engineering Co.**, 459 E. 133rd St., New York City.

▲ Mention Item **NED-4449** when writing ▲

PROCESS TIMERS

Equipped with one-piece molded Bakelite terminal block accommodating all external wiring to clearly marked screw post terminals, as well as bridge positions for selection of desired arrangement, these series 2800 Vernier-Set timers are of improved design.

Supplementing standard built-in features is leaf-spring contact for positive make-break action. Timer and load circuits are wired independently with facilities to be wired together by placing external jumper across terminals. Special flexible wiring is used.

Timers are available in two types. They are normal-clutch-action for resetting upon power failure and reverse-clutch-action for non-resetting on power failure. Variety of sheet metal housings for surface or flush mountings, as well as cast iron explosion-proof cases for one or two timers are available.

Standard units may operate from 110 or 220 volts, 25, 50 or 60 cycles. Load contacts are rated to carry 25 amperes at 110 volts, alternating current non-conductive, thus eliminating use for intermediate contactors or relays. Made by **Temperature Control Co., Inc.**, 34 E. Logan St., Philadelphia, Pa.

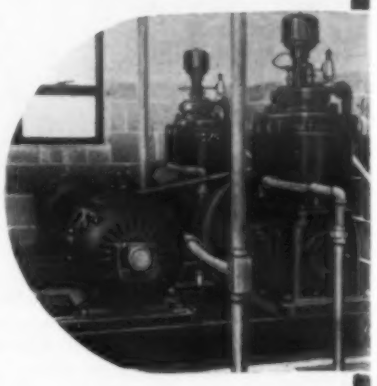
▲ Mention Item **NED-4450** when writing ▲

Air Power Can Speed War Production

CURTIS AIR COMPRESSORS

Assure a Dependable, Efficient Supply

Thousands of industrial users are lowering their costs by replacing old equipment with efficient, dependable, precision built Curtis Air Compressors.



Curtis Model "C" Air Compressors offer you:

- **Maximum capacity per dollar of first cost**
- **Highest volumetric and mechanical efficiency**
- **Maximum air delivery per unit of power input**
- **Lowest maintenance expense and oil consumption**
- **Capacities up to 360 cfm.**

SEND FOR FREE BOOKLET—Our free booklet, "How Air Is Being Used in Your Industry," will give you many valuable suggestions on the advantages of the use of Curtis air power equipment in your plant.

CURTIS PNEUMATIC MACHINERY DIVISION

of Curtis Manufacturing Co.

1979 Kienlen Avenue — St. Louis, Missouri

▲ Mention Item **NED-4451** when writing ▲

No More Damage from Condensation or Sweating Pipes, Tanks, Walls, Ceilings and Air Ducts

No Drip

A SURE CURE

This sensational plastic cork coating is easily applied with brush, trowel or spray to metal, concrete, brick, wood, plaster or composition surfaces. Insulates and prolongs life of pipe and other metal by preventing rust and corrosion.

Produces a permanent, stucco-like finish that requires no maintenance. Can be painted any color. A gallon covers about 30 feet of 1" O.D. pipe. Comes in 1, 5 and 55 gallon drums.

Order from your supply house or write for circular.

J. W. MORTELL CO.

Quality Products since 1895

526 Burch Street — Kankakee, Ill.

▲ Mention Item **NED-4452** when writing ▲

MORE

Precision Timing Tests

EVERY LAB HOUR

With Automatic

STANDARD ELECTRIC

STOP CLOCKS

The last word in simplified precision timing, now serving scores of laboratories and testing departments. Dial is large and easy to read. Automatic control eliminates manual error. "Shelf-size" makes the stop clock subject to less mislaying. Several models, including types for measurement of intervals from .01 second to one hour. Rugged, trouble-proof construction. Details on request.

THE STANDARD ELECTRIC TIME COMPANY

83 Logan St., Springfield, Mass. Branch Offices in Principal Cities

"STANDARD MAKES EVERY SPLIT-SECOND COUNT"

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WAR PLANTS

STEEL BOXES

For Your Production Needs
Prompt Shipment

STRAIGHT SIDE SHOP BOXES

A straight side shop box with rigid handle and hook hole each end. Excellent for shop use where stacking feature is not required.

No. 401—10" x 16" x 6"—18 ga. ..... $ .85 ea.
No. 402—12" x 18" x 8"—16 ga. ..... $1.10 ea.

STACKING BOXES

An ideal all-purpose shop box. Sturdy all-welded construction. Heavy skids act as a positive stacking lock and reinforce box at point of maximum wear.

No. 601—10" x 16" x 6"—18 ga. ..... $ .95 ea.
No. 602—12" x 18" x 8"—16 ga. ..... $1.25 ea.

Prices F. O. B. Factory, Philadelphia—Any Quantity

AMERICAN METAL WORKS, INC.
1524 Germantown Ave. Philadelphia, Pa.

▲ Mention Item NED-4454 when writing ▲

MILBURN CUTTING, WELDING, SPRAY FINISHING EQUIPMENT

Geared for **WAR** *today —or* **PEACE** *tomorrow*

Through two wars and for almost half a century, The Alexander Milburn Company has been serving Government and Industry. Milburn Equipment may be relied upon for superior, dependable service under stress of the most adverse conditions. Write for Catalog.

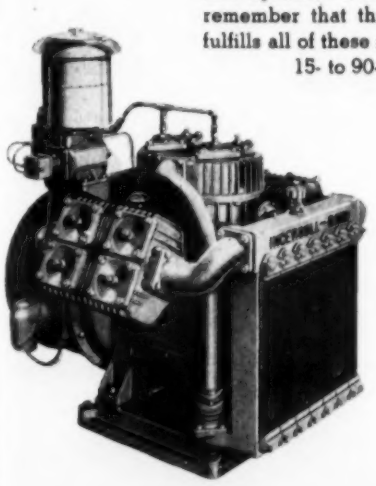
The ALEXANDER MILBURN Company

1423 W. BALTIMORE ST., BALTIMORE, MD.

▲ Mention Item NED-4455 when writing ▲

The MOTORCOMPRESSOR

When you need an air compressor which requires but little attention, that is compact, that is easily relocated and operates without cooling water, remember that the Motorcompressor fulfills all of these specifications in the 15- to 90-hp range.



- **AIR-COOLED** — No danger of freezing
- **TWO-STAGE COMPRESSION** — High efficiency
- **TIMKEN ROLLER BEARINGS** — Need but little attention

Write for Form 3166

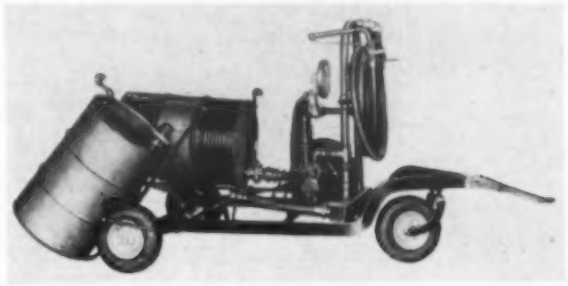
874-1

Ingersoll-Rand
11 BROADWAY, NEW YORK CITY

▲ Mention Item NED-4456 when writing ▲

OIL TRANSFER UNIT

Consisting of pump, meter and motor, this Lube-A-Plane is used to pump and meter oil from refinery barrels to aircraft and similar equipment. It has many other applications



in industrial plants wherever oil is used.

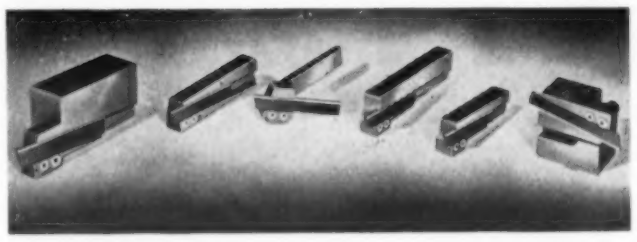
Single attendant can load and move device manually or with tractor to point of transfer of oil. Flow is regulated at nozzle. Unit is self-contained and mounted on tired wheels. All parts may be demounted and motor driven pump can be interchanged with gasoline engine driven or hand-operated unit in case of power failure.

Lever operated barrel tilting device is adjustable to barrels of various heights. Maximum flow and drainage is provided at any viscosity within temperature range specified. Unit is available in 2, 4 or 6-barrel models. Made by **Harman Equipment Co.**, 539 Santa Fe Ave., Los Angeles, Calif.

▲ Mention Item NED-4457 when writing ▲

CUT-OFF TOOL HOLDERS

Accommodating Luers cutting-off blades, this line of six tool holders adapts this method to six additional types of screw machines. Designs of holders makes possible their use on



Greenlee 4 and 6-spindle automatics, New Britain automatics, lathe and hand screw machines with round tool posts, Acme-Gridley R and RA series, and Gridley models F and G multiple spindle automatics.

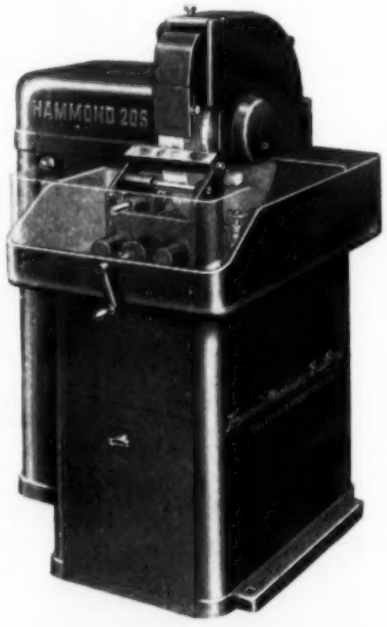
Cutting-off tool can be readily set up in machine and operator can remove blade for resharpening. Blade can then be replaced in precisely the original position without disturbing set up. Blade is held in place as rigidly as any forged blade by means of two cams which force top surface of blade against ground surface of holder, providing solid bearing. Locking device will release blade quickly and simply.

Arrangement on locking wrench serves as blade-setting gage and provides efficient means for accurately resetting blade after sharpening. Made by **Empire Tool Co.**, 8790 Grinnell Ave., Detroit, Mich.

▲ Mention Item NED-4458 when writing ▲

WET GRINDER

Featuring ability to be converted for grinding of carbide tools as well as for regular tool and snagging work, this model 20-S wet grinder incorporates modern construction. Unit has 3-horsepower totally-enclosed fan-cooled motor located in base with push-button starter high at side of machine. Starter is of magnetic type with overload, low voltage and power failure protection.



Grinding wheel furnished is 20 inches in diameter. It has 2½-inch face and 9-inch hole for mounting on large hole, wheel flange. Heavy cast wheel hood with hinged cover provides easy and quick wheel changes.

This model permits use of 64-square inch table with tilting mechanism. Table units tilt on hardened pivot pins, fitted with Oilite bronze bushings, by merely flipping convenient locking levers on sides. Entire table assembly moves in and out from grinding wheel face by means of detachable hand crank actuating protected screw mechanism.

Circulating coolant system with regulating valve located in sludge pan to right of tool rest, provides regulation of coolant flow. Detachable splash guard as illustrated, gives added protection to operator. Made by **Hammond Machinery Builders, Inc.**, 1623 Douglas Ave., Kalamazoo, Mich.

▲ Mention Item NED-4459 when writing ▲

MILLIONS OF WEDGE THREAD PROTECTORS

Split Feature Patented

WEDGE SPLIT CHILL RINGS *assure* STRONG JOINTS

The name WEDGE stands for the highest quality tin plugs, pipe protectors, plain end and thread protectors. Millions of protectors have been made for all purposes, many of them standard and others were developed to meet special requirements.

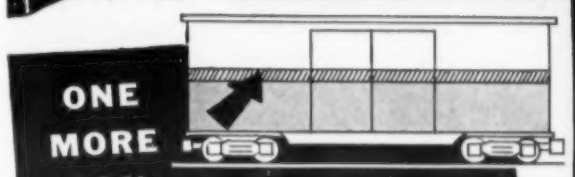
The reason WEDGE SPLIT Chill Rings will assure a STRONG joint is because the operator can always penetrate to the inside of pipe with the first layer of welding material. This gives you 100% penetration and, therefore, a STRONG joint.

WEDGE PROTECTORS, INC.
9528 RICHMOND AVE. CLEVELAND, OHIO

Use WEDGE Chill Rings - Thread Protectors

▲ Mention Item NED-4460 when writing ▲

SIGNODE SYSTEM OF STEEL STRAPPING



ONE MORE TON PER CAR CAN MEAN VICTORY!

● During the first quarter of this year railroad freight averaged 29.7 net tons per car. An average increase of only *one ton per car* would mean that 96.8 cars could do the work of 100—an increase in freight carrying capacity that could help decisively to win the war.

With certain commodities already loaded to car limits, it is squarely up to other shippers to make every effort to boost *their* load totals by scientific loading methods. Make "more freight per car" a part of your production drive. Ask a Signode engineer about the Signode System which boosts car capacity by saving space and cutting dunnage...reduces loading time . assures safe transit.

SIGNODE STEEL STRAPPING CO.
2632 N. Western Ave., Chicago, Ill.
Brooklyn, N.Y.: 378 Furman St. San Francisco, Calif.: 467 Bryant St.
Representatives in Principal Cities Throughout the United States and Canada

SIGNODE

★ 25 Years of Packing Improvement

▲ Mention Item NED-4461 when writing ▲

FAST PRODUCTION REQUIRES AN EFFECTIVE COOLANT SUPPLY FOR YOUR HARD-PRESSED MACHINES

Depend on Brown & Sharpe Pumps

Geared — Vane — Centrifugal

Write for Catalog showing a wide range of sizes for various applications.

BROWN & SHARPE MFG. CO.
Providence, R. I., U. S. A.

BROWN & SHARPE PUMPS

▲ Mention Item NED-4462 when writing ▲

TWICE THE SERVICE WITH HALF THE INSTRUMENTS

Twice the life—half the cost

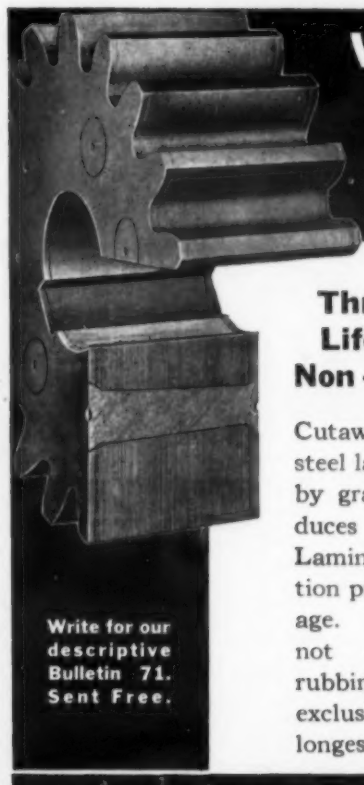
Draw circles from 1/8" to 10" with the large bow VEMCO Compass in this set . . prove for yourself that you don't need a large three bow set . . . The new VEMCO will *actually* give you *twice* the service with half the instruments . . . *and* note these features—Rugged construction . . . light weight, permitting the describing of dense 10" circles *in pencil* without the instrument yielding . . . capacity of a small bow pen and a draftsman's large compass . . . the most practical set available.

VEMCO instruments are designed by practical engineers and draftsmen to meet the need for strong, efficient American-made equipment, moderately priced.

Send for catalog today.

VEMCO DRAWING INSTRUMENTS
(FORMERLY VEECO)
V. & E. ENGINEERING COMPANY
756 S. Fair Oaks Ave., Pasadena, California

▲ Mention Item **NED-4463** when writing ▲



WALDRON SILENT STEEL GEARS

Three Times The Life Of Ordinary Non-Metallic Gears

Cutaway view shows the steel laminations separated by graphite film that reduces noise vibrations. Laminated steel construction prevents tooth breakage. Tooth profile does not deform to cause rubbing or wear. Other exclusive features insure longest gear service.

Write for our descriptive Bulletin 71. Sent Free.

JOHN WALDRON CORP.
NEW BRUNSWICK, N. J.

▲ Mention Item **NED-4464** when writing ▲

USED AS A MATTER OF FORM...

Many steel mills use High- or Medium-Carbon Ferro-Carbon Titanium as a matter of form. They have proved to their own satisfaction that the use of either of these final deoxidizers helps to improve the quality and promotes better rolling of sheets and forming plates. Send for data and specific applications of Titanium in steel.

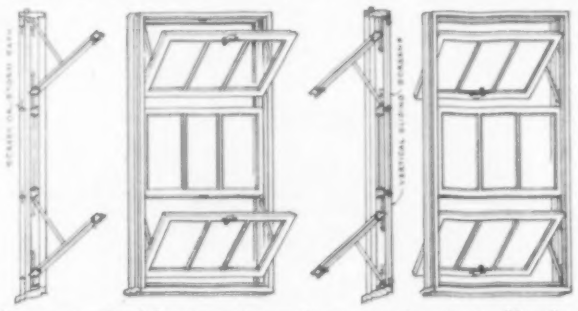
TITANIUM
ALLOY MANUFACTURING CO.

GENERAL OFFICES AND WORKS: NIAGARA FALLS, N. Y., U. S. A.
EXECUTIVE OFFICES: 111 BROADWAY, NEW YORK CITY

▲ Mention Item **NED-4465** when writing ▲

WOOD SASH COMBINATIONS

Adaptable to practically any installation requirement, these National Projected wood sash units were engineered by Graham, Anderson, Probst and White. They are available in



eighteen standard basic units, each an opening in itself, which can be installed individually or combined to meet any height or width. They may be used in both industrial and commercial buildings and with any type of wall construction.

Standardized frame is designed to accommodate either bottom pivoted in-projecting vents or top pivoted out-projecting vents without modification of hardware requirements. Units are claimed to provide maximum of light area per opening. Operating hardware is friction controlled and holds ventilator in any desired open position without danger of slamming and resultant glass breakage. Necessary hardware weighs only 3 pounds.

Installation labor is minimized through factory-fitted frames and prefitted sash. Screening or storm sash may be used in conjunction with this unit. Windows may be washed with safety from inside of building. Largest sash measures 4 by 2 feet, making units easy to handle, paint, glaze and install. Full details available from **National Door Manufacturers Association,** 332 S. Michigan Ave., Chicago, Ill.

▲ Mention Item **NED-4466** when writing ▲

TRUCK CONSERVATION BADGES

To further aid in National program of truck conservation being sponsored by Office of Defense Transportation, this button is offered to drivers and mechanics who sign up for U. S. Truck Conservation Corps.

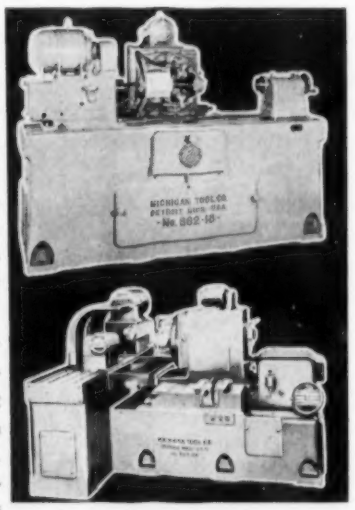
In these pledges now being issued by O.D.T., drivers and mechanics declare their intention to prolong life of trucks entrusted to their care by seeing that all minor adjustments and repairs are taken care of, and by co-operating in national preventive maintenance program now under way.

Button, illustrated here, is 1¼ inches in diameter and is attractively designed in red, white and blue. It bears lettering, "U. S. Truck Conservation Corps. I am pledged to Keep 'Em Rolling."

Buttons can be secured by any enrolled member of Corps without charge. Distributed by **Mack Truck, Inc.,** 48th Ave., & 34th St., Long Island City, N. Y.

▲ Mention Item **NED-4467** when writing ▲

GEAR FINISHING MACHINES



Suitable for finishing gears used in speed reducers, large engines, turbines and machinery of various types, these series 862 gear finishing machines are available in two sizes. Flexibility of machines permits application of crossed-axis principle of gear finishing to wide range of gear sizes.

There are three methods of gear finishing available with these units. First is particularly suited to finishing wide face gears. Cutter in addition to having infeed toward gear is also reciprocated parallel to axis of gear. This is accomplished by placing slide which carries cutter head in horizontal position. Cutter itself is mounted on bearing spindle, with its axis at angle to gear.

Second method is used for quick finishing of gears having narrower face width than cutter. Infeed is not used in this case, but cutter head is located in such manner that axis of cutter and axis of gear are at proper center distance from each other.

Third method represents combination of first and second methods. Cutter slide is again vertical, but infeed is used. Infeed is automatically terminated by means of limit switch.

Units in this added series of gear finishing machines are all heavy-duty and are all-electric controlled. Included are splash guards, coolant pump and lubrication of machine is supplied by plunger pump and two manually operated reservoir oilers. Made by **Michigan Tool Co.,** 7204 McNichols Rd., Detroit, Mich.

▲ Mention Item **NED-4468** when writing ▲

D & D ADJUSTABLE HOLE CUTTER

CUTS QUICKLY AND ACCURATELY ANY SIZE IN ANY METAL

PRIORITIES REQUIRED

U. S. and Foreign Patents.

The five sizes of D & D Hole Cutters will cut any size hole quickly and accurately from ¼" to 12" and in any material from stainless steel to fibre board. The adjustable feature means a wide range of cutting size without the necessity of carrying in stock an expensive set of tools. The cutters are sharpened like lathe tools—again, no expensive set up or expert handling—thus saving time and money.

Ask Your Jobber or Send for Descriptive Folder to

N. J. FRAYN
NATIONAL SALES AGENT
P. O. BOX 1005 REDWOOD CITY, CALIF.

▲ Mention Item **NED-4469** when writing ▲

Charge Them **"ON THE SPOT"** *Keep Them* **"ON THE JOB"**

Minutes and manhours are important in getting EXTRA PRODUCTION . . . but electric trucks, too, must operate at full efficiency.

G-E Copper Oxide Truck Chargers eliminate the wasted time, effort and power of a central charging station. They can be installed anywhere in the operating vicinity of the truck and can be easily transferred to any location.

The G-E Truck Charger gives automatic operation. An initial high charging rate automatically reduces to a lower finishing rate. The current cuts off automatically when charge is completed.

For complete information on G-E Copper-Oxide Battery Chargers, write to Section A927-100, Appliance and Merchandise Dept., Bridgeport, Conn.

GENERAL ELECTRIC

▲ Mention Item **NED-4470** when writing ▲

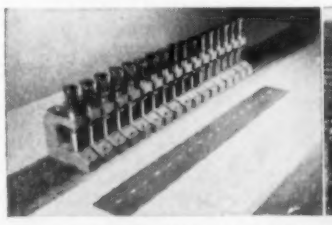
WALES PUNCHING UNITS

Die setting time is reduced from hours to minutes by Wales patented holder which keeps punches and dies always in perfect alignment.

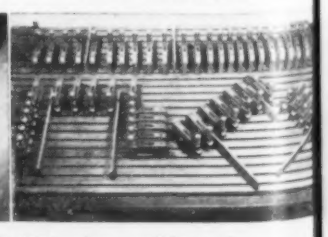
FEATURES OF WALES UNITS. Nothing is attached to press ram . . . self-contained punch and die holder . . . punch and die always in perfect alignment . . . each individual holder can be removed or reset on rails, templates or T-slotted plates instantly . . . punches, dies, guides, and strippers can be removed from holders quickly . . . interchangeable punches and dies punch various sizes and shapes with the same holders . . . irregular patterns of holes, not in straight line, can be punched with Wales Units . . . makes possible sliding one set-up out of the press and another pattern into position ready to operate. Write for catalog.

THE STRIPPIT CORPORATION, BUFFALO, N. Y.

Line-up of Wales Punch and Die Holders mounted on press rail.



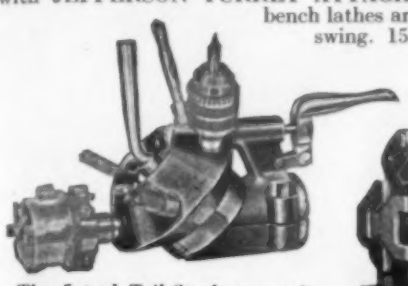
Showing 3 set-ups of Wales Dies on one T-slotted plate.



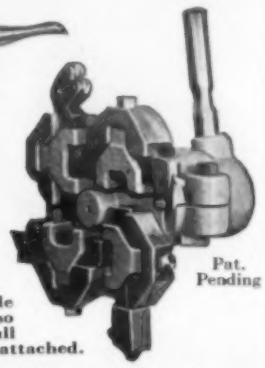
▲ Mention Item **NED-4471** when writing ▲

DON'T WAIT FOR TURRET LATHES

Convert any engine lathe into a turret lathe in 15 seconds, with JEFFERSON TURRET ATTACHMENTS. To fit bench lathes and lathes up to 24" swing. 15 *days delivery*.



The 5 tool Tail-Stock turret is made in 4 sizes.



The 4 tool Tool-Post turret is made in 2 sizes. Also adjustable Pull Feed. Easily attached.

Pat. Pending

JEFFERSON PRECISION MILLING MACHINE

Motor-driven—capable of close tolerances. Hand and power feed. Floor or bench type. 4 spindle speeds, 200, 400, 700, 1,000 R.P.M.

V Belt Drive. Write for further details.

Also—Milling Machine Dividing Heads, Vises, Belt Sanders, Swing Frame Grinders, Gyratory Foundry Riddles.

JEFFERSON MACHINE TOOL CO.
669-679 W 4th STREET DEPT. J CINCINNATI, OHIO

▲ Mention Item NED-4472 when writing ▲

This is the work of our nation . . . . . .

These are the hands that do the work of our nation

This is the worker who owns the hands that do the work of our nation . . .

This is SANI-DRI, the machine that protects the worker who owns the hands that do the work of our nation.

SANI-DRI, the electrical hand drier, provides a *most sanitary, constantly dependable* drying service and *automatically* keeps washrooms *cleaner*. It aids in the conservation of the material resources and labor of the country. By helping to prevent the spread of communicable diseases, it is saving the loss of irreplaceable man-hours of labor. By providing a drying service that requires no towels, it is conserving shipping space and weight that can be devoted to war-material shipments (to equal one SANI-DRI's minimum capacity of two million drying operations would require *over 24 tons* of paper towels). Write for literature and details.

Dependable Since 1897

THE CHICAGO HARDWARE FOUNDRY CO.
SANI-DRI DIVISION
942 Digest Bldg. • North Chicago, Ill.

Designers and Manufacturers of "Sani-Dri" Industrial Driers, Restaurant, Cafeteria, and Lunch Room Equipment . . . Producers of High Grade Iron, Ni-Resist, Semi-Steel, Brass, Bronze, Aluminum and Alloy Castings . . . Machine Work, Plating, Porcelain Enameling, and Cast Iron Welding Rods.

▲ Mention Item NED-4473 when writing ▲

SELF-PROPELLED CRANE

In airports, airplane factories, shipyards, docks, freight terminals and warehouses, this self-propelled pneumatic-tired Hyster Karry Krane is becoming increasingly useful.

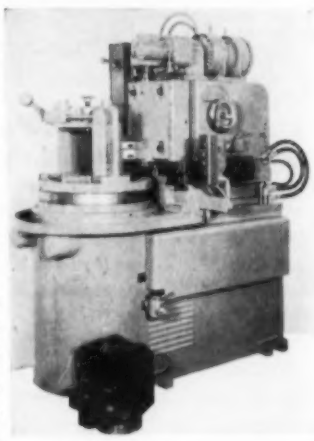
It lifts and carries loads of all sorts such as motors, sub-assemblies or anything that can be handled with slings, hooks or tongs, weighing up to 10,000 pounds. Its mobility makes possible installations and assemblies away from overhead crane facilities and in emergencies can extend assembly lines into open spaces beyond regular plant facilities.

Unit has three traveling speeds in both forward and reverse. Boom is adjustable from 9 feet, 8 inches in its lowest position where it will lift and carry loads of 4000 pounds, to 2 feet, 4 inches with boom height of 19 feet, 4 inches for loads of 10,000 pounds.

Pneumatic tires provide traction that enables it to operate over rough ground or under difficult road conditions. Unit is steered through large twin caster wheels in rear, enabling it to turn in its own length. Made by **Willamette Hyster Co.**, 2917 N. E. Clackamas Street, Portland, Ore.

▲ Mention Item NED-4474 when writing ▲

PRODUCTION MILLER



Milling of extractor trunnion pockets in gun breech ring is accomplished on production basis by this special type milling machine. Operation consists of cutting kidney-shaped slots in piece and work is done without use of special attachments, such as tracers or duplicators.

Work cycle of machine is as follows. When work piece is loaded in locating fixture and cycle starting button pressed, tool spindles start to rotate and tool spindle slide advances into position while fixture table starts to oscillate work through short arc which controls shape of slot. Slot is cut in steps which are adjustable from few thousandths of an inch to 1/32-inch deep per oscillation of table. Oscillation and tool advance are hydraulically operated and electrically controlled.

Machine consists of base, containing hydraulic equipment and piping, rotating table mechanism for work holding fixture and spindle head housing with its column, and feed mechanism. Because of full automatic cycle, it is claimed that production is much greater than could be obtained through toolroom set-up methods. Coolant is contained in side-mounted coolant trough equipped with chip basket to collect chips. Made by **Snyder Tool & Engineering Co.**, 3400 E. Lafayette, Detroit.

▲ Mention Item NED-4475 when writing ▲

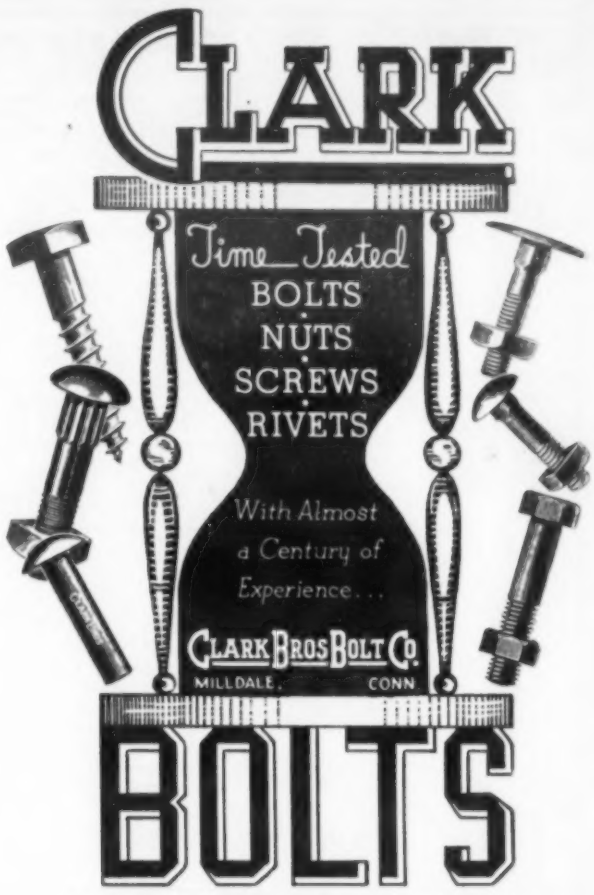
PORTABLE FLOODLIGHT

In combustible areas which cannot have installed lighting, this portable floodlight is battery-operated. Unit is intended for use in such places as powder igloo interiors, powder magazines, freight car and warehouse interiors containing combustibles, and during blackouts and other emergencies.

Unit consists of small steel box, 19 by 9⅞ by 20¾ inches, with special dust and vapor-proof lamp housing mounted on bracket to allow pointing in any desired direction. High efficiency glass reflector, combined with pre-focus positioning of unit's 50-candlepower concentrated-filament type bulb and diffusive lens, gives powerful medium-angle floodlighting distribution.

Five cell storage battery with nonspill valves is housed in box of unit. Quick exchange of discharged batteries for charged units is made possible through polarized connector permanently wired to battery terminals. Normal burning time for unit is approximately 10 hours. Made by **General Electric Co.**, Schenectady, N. Y.

▲ Mention Item NED-4476 when writing ▲



▲ Mention Item NED-4477 when writing ▲

Help these NEW men with

Easier Reading BW prints

● New men—semi-skilled and unskilled employees—often find blue prints confusing. Help them avoid errors and delay with Bruning Black and White (black line) Prints. The sharp black lines on white background are far easier to read—the white backgrounds make checking simple.

Remember, too, that BW prints are produced *faster* than blue prints—have a host of other time-saving advantages. Write for free booklet. Charles Bruning Co., Inc.

BRUNING
Since 1897 2083-257-1
NEW YORK • CHICAGO • LOS ANGELES
Branches in 14 Principal Cities
SPEEDS • SIMPLIFIES • AND PROTECTS A NATION'S DRAFTING

▲ Mention Item NED-4478 when writing ▲

With LIMA GEARSHIFT DRIVES on your machines, you *WILL GET* the production you want, regardless of whether these are lathes, milling machines, shapers, boring mills, planers, gear hobbing machines or any other type requiring selective speeds, there is a LIMA GEARSHIFT DRIVE to do the job.

LIMA has hundreds of users who have proven records of increased production of from 20% to 200% and over, depending on the nature of the work involved. Why not consult LIMA on your Production problems. Recommendations on your requirements will be made by Engineers who have definite knowledge and long range of experience in modernizing and motorizing machine tools and equipment.

LIMA GEARSHIFT DRIVES have numerous features designed to Speed-Up Production, to facilitate Efficiency and to afford utmost Safety to the operator. Integral automotive transmissions make possible instant speed changes by shifting gears rather than changing belts, and a hand wheel and belt guard on each unit reduces to a minimum the danger of accidents due to set-up changes. Standard mounting brackets available for most standard machines. Average installation time, 2 to 3 hours.

Beat Production Schedules with LIMA GEARSHIFT DRIVES

Write or Wire us today
Prompt attention to inquiries
Prompt delivery of orders

THE LIMA ELECTRIC MOTOR CO.
OFFICES - NEW YORK - CHICAGO - DETROIT
LIMA, O. U. S. A.
DRIP-PROOF · EXPLOSION-PROOF · POLISHING LATHES · OPEN · VERTICAL · TOTALLY-ENCLOSED

▲ Mention Item NED-4479 when writing ▲

Rawhide HAMMERS

• As carefully made as the finest tool. Accurately balanced malleable iron heads on straight grained and polished hickory handles. Replaceable genuine Java Water Buffalo Rawhide faces which will not chip, shear, or split, providing a striking surface that is smooth and accurate to the last blow.

Cat. No.	Diameter in inches	Weight in pounds
0	1	½
1	1¼	1⅛
2	1½	1⅝
3	1¾	2¼
4	2	4
5	2¾	5½

These are the tough, resilient, long-lasting Rawhide faces made from specially treated Java Water Buffalo hide for use in Chicago Rawhide Hammers.

Rawhide MALLETS

• Chicago Rawhide Mallets have solid, hard rolled Java Water Buffalo Rawhide heads securely glued and riveted, fastened to hickory handles with steel forged pin. A tool that is finely balanced for accurate blows, made for long service and safe to use.

Cat. No.	Diameter Inches	Length Inches	Weight Ozs.
Not Loaded			
0	1	2⅛	2
1	1¼	3	3½
2	1½	3¼	6
3	1¾	3¼	7½
4	2	3½	10
5	2¾	4¼	21
6	2¾	4¾	23
Loaded Mallets			
7	1¼	3	8
8	1½	3⅛	12
9	1¾	3⅛	16
10	2	3½	20
11	2¾	4¼	42

CHICAGO Rawhide MFG. CO.
128 ELSTON AVE. ★ CHICAGO, ILLINOIS.

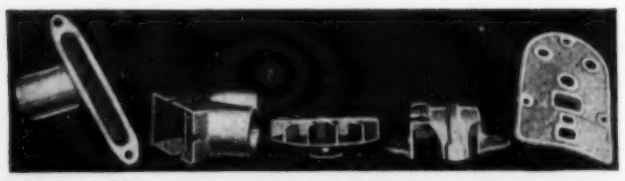
▲ Mention Item **NED-4480** when writing ▲

HOLTITE Fastenings CUT ASSEMBLING TIME

SCREWS, BOLTS and ALLIED FASTENINGS

CONTINENTAL SCREW CO. New Bedford, Mass. Warehouses at Detroit and Chattanooga

▲ Mention Item **NED-4481** when writing ▲



DIE CASTINGS
ZINC or ALUMINUM

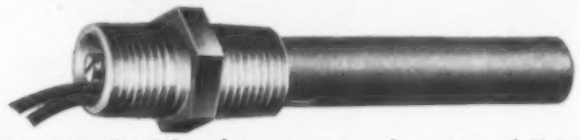
We now have additional capacity in our new, modern plant available for greater production of zinc and aluminum die castings. Highest quality. Good deliveries—on schedule. Send prints or samples for quotation.

CONGRESS DIE CASTING DIV.
CONGRESS TOOL & DIE CO.
3752 East Outer Drive Detroit, Mich.

▲ Mention Item **NED-4482** when writing ▲

THERMAL SWITCH

Adaptable for use as light switches for stoker-fired boilers, oil burners, instantaneous water heaters and similar equipment, this coupling head Thermoswitch is designed for in-



sertion into closed liquid or gas system by means of ½-inch standard pipe thread. Many types of condulets may be attached to head for applications requiring explosionproof fittings. Switch may be used for temperature control of molding press platens and other devices.

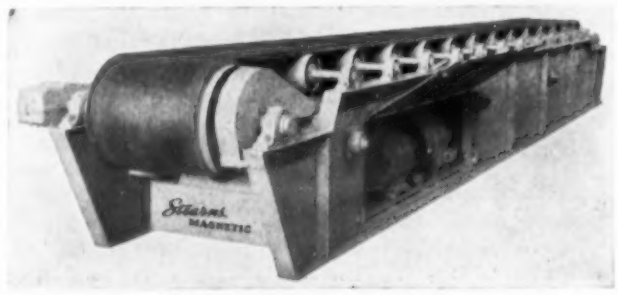
Adjustment is made readily by turning adjustment screw. Full turn of screw effects setting by 70 degrees Fahr. For more sensitive applications, unit may be furnished with adjustment of 30 degrees per turn of screw. Adjustable operating range is from minus 50 to plus 400 degrees Fahr.

Regular switches have contacts which open on increase of temperature. Inverse styles have contacts which open upon decrease in temperature. Rating of contacts is 10 amperes at 115 volts or 5 amperes at 230 volts, alternating current. Special designs include units for operation up to 600 degrees, and in 25 ampere rating. Made by **Fenwal, Inc.**, 20 Main St., Ashland, Mass.

▲ Mention Item **NED-4483** when writing ▲

MAGNETIC PICKING BELT

Reclaming of brass and secondary metals of all types from assorted junk and metallic refuse is facilitated with this combination picking belt and magnetic pulley separator unit.



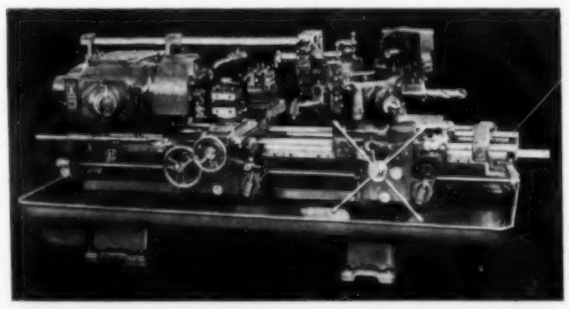
Equipment can be designed in sizes to suit practically any application. Model illustrated is 22 feet long, 30 inches high and has 18-inch endless, vanner-edged belt operating at 30 feet per minute. Belt is supported by idler rollers and machine is equipped with antifriction bearings throughout.

Drive is effected through motor reducer and generator which are installed within machine. Access to drive is provided by covers which can be opened. Arrangement of picking belt ahead of magnetic pulley provides means for sorting material by hand to eliminate bulky junk of all kinds before reclaiming brass from remaining metallic refuse. Thus, both manual and automatic operations are performed in single machine. Made by **Stearns Magnetic Mfg. Co.**, 653 S. Twenty-eighth St., Milwaukee, Wis.

▲ Mention Item **NED-4484** when writing ▲

SADDLE TYPE TURRET LATHE

Embodying labor-saving, cost-reduction and production features, models 9A and 10A saddle type universal turret lathes feature power traversing of saddle and power indexing of



hexagon turret, both operated by one lever through which both high and low speed positive traverse can be obtained. No. 9A machine has maximum round bar capacity of 3½ inches and will swing 23½ inches over way covers. No. 10A unit handles round bar up to 5 inches in diameter and will swing 27½ inches over way covers.

Heavy walled turrets permit use of abnormally large boring bars without need for pilots. Additional support for multiple turning heads is furnished by heavy stationary pilot bar mounted on headstock. Bed is of double-wall box-ribbed design, assuring strength and rigidity, and with provision for easy chip removal.

Headstock has antifriction transmission and spindle bearings. Power rapid traverse is provided for bridge type carriage and cross slide. Traverse has gear drive and is operated by single lever which controls all four movements of carriage and cross slide. Multiple tooling on front and rear of cross slide can be used to advantage.

Other features include single lever speed and feed selectors, coolant supplied under pressure directly to working face of turret, and power operated bar feed mechanism. Reversible torque motor, controlled by switch on headstock within easy reach of operator, actuates stock feed chuck lead screw through gear train and either advances or withdraws stocks as required. Made by **Jones & Lamson Machine Co.**, Springfield, Vt.

▲ Mention Item **NED-4485** when writing ▲

SLY DUST COLLECTOR
DOES A 4-FOLD JOB

View of Sly Dust Filter with standard supports mounted on concrete piers, for truck passage under dust hoppers.

Exhausts—
1 — Blast Cleaning Equipment
2 — Tumbling Mills
3 — Grinders
4 — Polishing Wheels and Grinders

This Sly Dust Collector consists of four dust filters, two classifiers, two combination spark arresters and classifiers, and three fan houses, as shown in the sketch. It does a thorough job of exhausting all dust created by cleaning and polishing operations.

Sly Dust Filters offer certain exclusive advantages which help enormously in efficient operation:

1. Greater filtering capacity because of more filtering cloth
2. Taut bags (patented) save power and improve dust removal
3. Bags more easily replaced
4. Automatic control (any degree) minimizes or entirely removes the human factor
5. Simpler shaker mechanism results in savings in maintenance and operation

Write us fully. We shall analyze your situation and tell you exactly what can be accomplished. Sly Dust Control pays for itself.

SLY THE W. W. SLY MFG. CO.
4748 TRAIN AVE., CLEVELAND, O.
INDUSTRIAL DUST CONTROL

▲ Mention Item **NED-4486** when writing ▲

Making a CENTRIFUGAL CASTING Better

Accurate machining on modern equipment has helped to establish Shenango-Penn's reputation for *good* castings. They are clean, true to size and can be depended upon for close tolerances. Standard alloys have been established to conform with government and society specifications. Write for Booklet No. 141 covering specifications and uses of our bronzes—monel metal—alloy irons.

SHENANGO-PENN MOLD COMPANY
803 W. THIRD ST., DOVER, OHIO
Executive Offices: Pittsburgh, Pa.

▲ Mention Item **NED-4487** when writing ▲

PROVE IT!
WITH THESE WATCHCLOCK DIALS

FREE new folder shows you a watchman's clock that proves that you've taken reasonable precautions in protecting your property and your *productive capacity* against fire, theft, and *sabotage!*

The Simplex Watchclock proves that your watchmen actually *made* their rounds at the appointed times, for the station number is clocked *at* the station while the watchman is *there*. It can't be clocked any other way or at any other place, because the symbol prints directly from the *station* key.

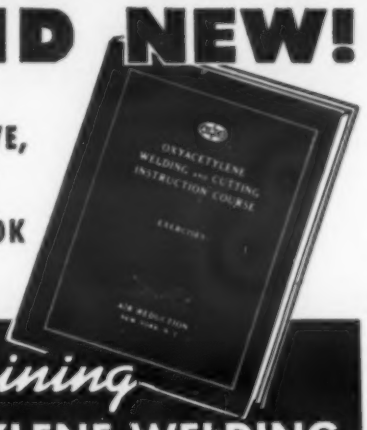
Address Dept. D-9, Simplex Time Recorder Co., Gardner, Mass. Branches in Principal Cities. *Headquarters for Time Cards.*

SIMPLEX TIME RECORDERS

▲ Mention Item **NED-4488** when writing ▲

BRAND NEW!

A COMPREHENSIVE, UP-TO-DATE INSTRUCTION BOOK



For Training
OXYACETYLENE WELDING and CUTTING OPERATORS

This book starts at rock bottom — instructs the beginner on set-up of apparatus. It describes welding fundamentals — methods, torch and rod positions and manipulation . . . procedure for welding, braze welding and low temperature brazing. Lessons cover steel, pipe, sheet metal, cast iron, brass, copper and aluminum.

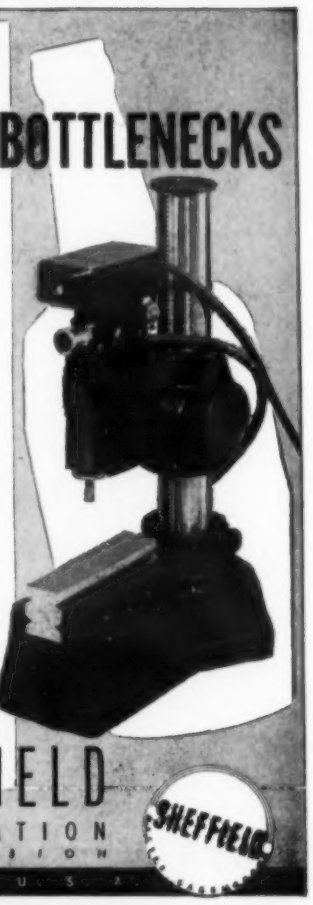
Without question, this Airco Oxyacetylene Welding and Cutting Instruction Book will prove an invaluable aid to quickly train oxyacetylene torch operators to meet today's needs. $1.00 per copy, quantity prices on request.

AIR REDUCTION

General Offices: 60 East 42nd St., New York, N. Y.
In Texas: Magnolia—Airco Gas Products Co.
DISTRICT OFFICES IN PRINCIPAL CITIES

▲ Mention Item **NED-4489** when writing ▲

Eliminate
INSPECTION BOTTLENECKS
WITH
SHEFFIELD ELECTRIGAGE



The Sheffield Electrigage has eliminated the bottleneck of slow, tedius dimension checking in many inspection departments because it flashes the answer instantly—as fast as work pieces are presented—amber shows size within tolerances—green oversize—red undersize.

Accurate to .000010" at any tolerance. Can be set to tolerances from .012" to .000050". Flexible—may be mounted to check parts while still on the machine—sturdy—retains accuracy.

Write for information.

THE SHEFFIELD CORPORATION
GAGE DIVISION
DAYTON, OHIO, U. S. A.

▲ Mention Item **NED-4490** when writing ▲

IN PRODUCTION
COLD DRAWN STAINLESS TUBES MADE FROM STRIP
UP TO 5/8" OD — WALL FROM .012" TO .083"

SUPERIOR TUBE CO. NORRISTOWN, PENNA
WELDRAWN
(WELDED DRAWN)
STAINLESS TUBING

Write for samples and detailed test data

WELDRAWN STAINLESS TUBING

Seamless Tubing Features at Lower Cost!

WELDRAWN was developed by *Superior Tube Company* to meet the increasing demand for low cost tubing in 18-8 and other Stainless analyses. One of the outstanding features of this new product is the fact that no metal is added during the welding, assuring a completely homogeneous tube which will not show inferior corrosion resistance. After cold drawing by Superior, the weld cannot be detected except by the use of a metallurgical microscope

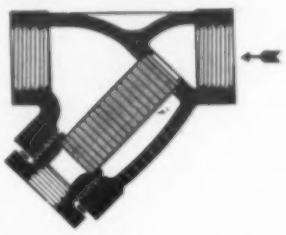
SUPERIOR TUBE CO. NORRISTOWN PENNSYLVANIA

"For fine small tubing" in Seamless and other Types and various Metals

▲ Mention Item **NED-4491** when writing ▲

PIPELINE STRAINER

Available in six standard sizes for pipe lines ranging from ½ to 2 inches, this line of Yarway Fine-Screen strainers has been improved in design. Features include plating inside and outside for protection against corrosion. Screen is of Monel woven wire fine enough for straining service but having ample free area. Straight thread and machined face on blow-off bushing permit easy removal and replacement of screen and assure tight joint.

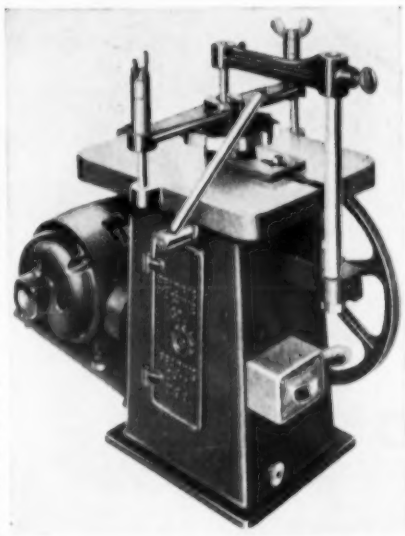


Constructions include iron body for pressures up to 250 pounds per square inch and steel body for pressures up to 600 pounds per square inch. Flanged end type units are also available, as are welded fittings.

Protection is afforded to steam traps, reducing valves and other types of pipe line equipment when these strainers are installed closely ahead of units. Dirt, chips, scale, welding dross and packing shreds are prevented from entering working parts of these devices. Strainers may be installed either horizontally or vertically. Made by **Yarnall-Waring Co.**, 131 Mermaid Ave., Philadelphia, Pa.

▲ Mention Item **NED-4492** when writing ▲

BENCH KEYSEATER



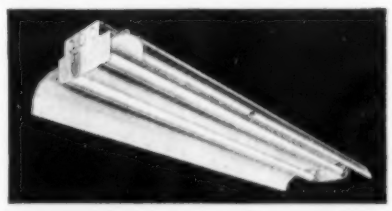
With adaptability covering filing, sawing, slotting, oil grooving and other operations, this bench keyseater has added feature of portability. It will cut tool steel, cast iron, bronze, cold rolled steel, copper, aluminum, and similar materials.

Chips cannot clog machine. They fall directly into chip drawer in lower part of base. Unit will hold any round, square or irregular shaped part. Floor space necessary is 16½ by 29 inches. Height is 28 inches at top of stroke. Unit has 4-inch stroke. Motor recommended is ¾-horsepower, 1150 revolutions per minute.

Keyseater may be furnished with standard size cutters ranging from ⅛ to ⅜ by 16 inches. Swing of machine is 12 inches. Made by **Reading Machine Co.**, Reading, O.

▲ Mention Item **NED-4493** when writing ▲

PRESSED WOOD REFLECTOR

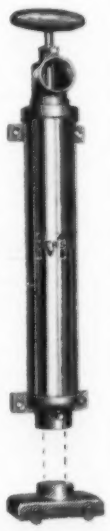


Available for two 40, three 40 and two 100-watt fluorescent lamps, this Maze-Lite lighting unit has reflector made from pressed wood. It is extremely light in weight and is covered with durable 300-degree white finish.

Accessory housing is made of steel and features side-of-channel starter switches for easy trouble shooting and bump-proof end plates which extend behind lapholders for added protection. For unit or continuous mounting, these fixtures may be attached to conduit or to chain hanger. Product is available for immediate shipment. Made by **Edwin F. Guth Co.**, 2603 Washington Blvd., St. Louis, Mo.

▲ Mention Item **NED-4494** when writing ▲

BILGE PUMP



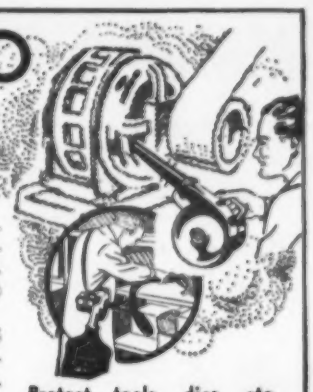
Built in accordance with U. S. Navy requirements, this hand operated bilge pump is of single acting design. Featuring all-brass construction, unit may have either vertical or horizontal suction. Though specifically designed for removal of bilge water from small boats, pump may also be used for galley and other services.

Since pump is frequently used for emergency service at infrequent intervals, it is designed for these conditions. Brass is used throughout for resistance to corrosion in salt water. Plunger and check valves are guided, both top and bottom, to assure trouble-free performance.

Non-clogging brass strainer is provided, which extends to within ¼-inch of floor. Both horizontal and vertical strainer boxes are furnished. Capacity is 1/3 gallon per stroke. Cylinder dimensions are 2-11/16-inch diameter by 13-inch maximum stroke. Made by **The F. E. Myers & Bro. Co.**, Ashland, O.

▲ Mention Item **NED-4495** when writing ▲

TORNADO
settles your DUST *problem*



REDUCE replacements and repairs—protect essential operating equipment—increase efficiency—with the TORNADO Portable Electric Blower.

Blows clean, dry air, at 295 m. p. h. Cleans motors, generators and hard-to-reach places. Removes dust, dirt, lint, chips, etc. Costs less than 3c an hour to operate. Reduces damage to motors and bearings. Lessens fire and health hazards.

1 H. P. G. E. universal motor. Light weight. Portable anywhere. Plugs in at convenient outlets. Adaptable for spraying paint and insecticide. Convertible into powerful industrial vacuum cleaner, for cleaning walls, floors, ceilings, etc.

Protect tools, dies, etc. against loss or theft. Mark them with the TORNADO Electric Etcher, shown below. Easily portable.

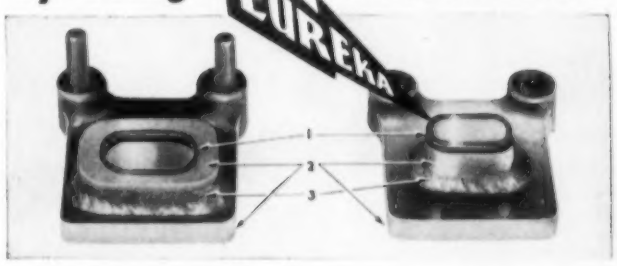
TORNADO Electric Etcher. Marks iron, steel and steel alloys. *Request details.*

FREE TRIAL—WRITE TO
BREUER ELECTRIC MFG. CO.
5106 N. RAVENSWOOD AVE., CHICAGO

TAKE THE DUST OUT OF INDUSTRY
with BREUER'S BALL BEARING
TORNADO
PORTABLE ELECTRIC BLOWER

▲ Mention Item **NED-4496** when writing ▲

Here's an Opportunity..
to CONSERVE TOOL STEEL
by using EUREKA ELECTRODES



Yes—it's being done every day. Tons of tool steel and alloys are being saved by welding worn or fractured dies with Eureka Electrodes and the use of a vast amount of like material is being eliminated by welding on the working edges of less expensive and more easily procurable carbon steels.

HERE'S HOW IT'S DONE

Illustration shows typical fabricated dies. Arrows 1 point out tool steel electrode deposits used as cutting edges, neither of which are over 3/16 inch thick. Arrows 2 indicate machine steel used instead of tool steel to lower die composition cost, and 3 refers to construction welds made of mild steel rod to hold die parts together.

We would like you to have our bulletin which describes and illustrates in detail the application of this new type of electrode. Send for it now!

WELDING EQUIPMENT & SUPPLY COMPANY
229 LEIB STREET DETROIT, MICH.

▲ Mention Item **NED-4497** when writing ▲

2 TO 5 TIMES MORE WORK
PER MAN PER MACHINE WITH NEW GRINDING WHEEL

Here's the way to help solve labor and machine shortage on precision grinding operations and speed up national war production. Por-os-way, a new grinding wheel, made by a new, patented process enables you to take far deeper cuts or your usual cuts at faster feeds, 2 to 5 times faster by test. New aerated structure keeps wheel and work cool, practically eliminates burning. Grinds toughest alloys, resists loading on aluminum, plastics or softer materials. Write for a demonstration today.

Copyright 1942 by
A. P. DE SANNO & SON, INC., 446 Wheatland Street PHOENIXVILLE, PA.
Offices and Warehouses in Principal Cities
Since 1893
*T. M. REG. U. S. PAT. OFF.

POR-OS-WAY* *a new* RADIAC* PRODUCT
ASK FOR A DEMONSTRATION

▲ Mention Item **NED-4498** when writing ▲

For Your Convenience in Obtaining Information on Products, Use Inquiry Blank Enclosed in This Issue.

AMMUNITION SHELLS

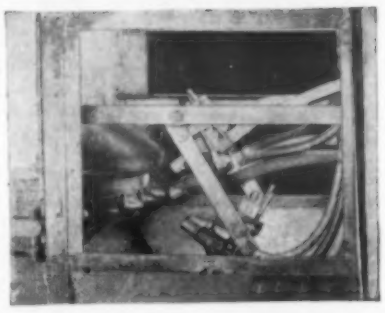
CLEANED

INSIDE AND OUTSIDE

AUTOMATICALLY

and at a high rate of speed with

LEIMAN BROS.



ROTATING-FIXTURE, MULTIPLE-NOZZLE

SAND BLAST

Complete outfits are furnished for shells of all calibres and for all other classes of work—Metals, plastics, glass, composition, bakelite, etc.

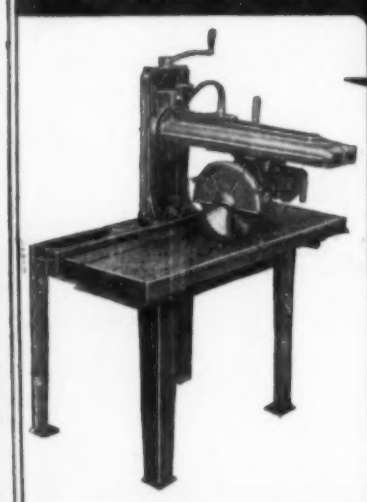
RAPID DELIVERY TO SPEED WAR SUCCESS

LEIMAN BROS. Inc.

167-2 Christie St. **Newark, N. J.**

▲ Mention Item **NED-4500** when writing ▲

WALLACE No. 1 RADIAL SAW



ALL-PURPOSE SAW FOR WOOD AND METAL

For cut-off, miter and rip work on Wood, Duralumin, Brass, Bronze, Steel, Glass and other refractory materials.

In the crating department, for plant maintenance work, for production sawing and cutting operations on wood, duralumin, metals, etc. the Wallace No. 1 Radial Saw is unexcelled. Material lays flat on table,—motor is moved back and forth in arm for cutting. Arm, column and motor all rotate 360° and can be set at any angle position for cutting. Motors to 2 H.P. Used with saw blades or ½" thick abrasive wheels. Write for bulletins on this cost-saving machine *today.*

J. D. WALLACE & COMPANY

145 S. California Ave. Chicago, Illinois

▲ Mention Item **NED-4501** when writing ▲

It takes TWEEZERS to Test-load some SPRINGS

Certain precision springs that Hunter makes for use in instruments must be tested so accurately that the tiny test weights can only be handled with tweezers. Tests of these sensitive springs are made on a Coats coil spring tester. The accuracy, even the functioning, of machines or devices often hinges on the sensitivity of a spring—which is a sensible reason why a scientific spring maker—like Hunter—should be entrusted with your spring job.

HUNTER PRESSED STEEL CO., LANSDALE, PENNSYLVANIA

HUNTER

Science in Springs

▲ Mention Item **NED-4502** when writing ▲

BLUE PRINT DRYER

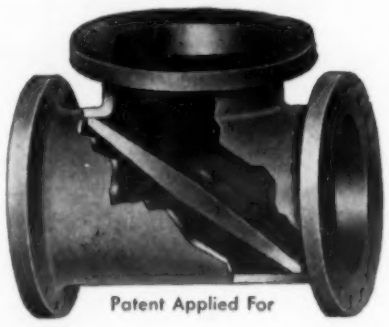
Enabling finishing of blue prints within plant and thus safeguarding secrecy of plans, this model 130 Weaco blue print dryer handles process on spot and saves time. Unit will accommodate standard 30-inch blue print paper in lengths up to 32 inches. Chromium plated drum measures 34 by 18 inches in diameter and has drying surface of 32 by 52 inches.

Manufacturer states that dryer is exceedingly fast and will dry blue print in approximately 5 minutes, which is less time than it usually takes to expose and develop print. It uses 700 watts on 115 volts, either alternating or direct current operation. Production capacity is equal to that of machines much larger in size. Drying belt is made of pre-shrunk material which is tough in substance. Heating element is guaranteed for five years. Made by **Warren Electric Appliance Co.**, Warren, Pa.

▲ Mention Item **NED-4503** when writing ▲

THREE-WAY VALVE

Designed for mixing and quick interchange service, this three-way butterfly type valve is adapted to fully automatic control by means of air diaphragm motor or hydraulic cylinder.



Patent Applied For

Valve is constructed of cast steel or cast iron for pressures up to 600 pounds per square inch. When desirable, special metals for resistance against heat, abrasion and corrosion can be substituted with attendant savings in cost. Special feature is self-cleaning double-beveled, streamlined vane. It seats wedge-tight against body of valve, producing tight shut-off as well as positive control of volume and pressure.

For inaccessible locations, reach rod with de-clutching unit is provided for automatic operation or manual control in case of power failure. Made by **R-S Products Corp.**, 4527 Germantown Ave., Philadelphia, Pa.

▲ Mention Item **NED-4504** when writing ▲

PUSH BUTTON CONTROLS

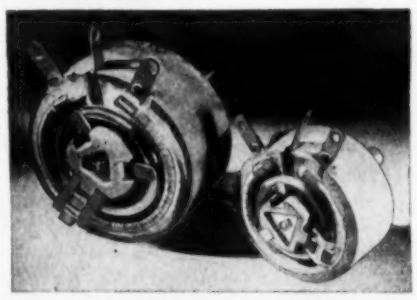
Greatly increased safety and economy are said to be outstanding features of these Safety Pull-Push push button stations for motor controls. With use being made of pull action as well as push, two operations are therefore preformed with one button which cuts in half buttons formerly required.

Single button for stopping and starting is natural even for inexperienced person. Normal position, or point of rest, is in center, requiring definite action to move it in either direction from center. Button is pushed to stop motor, but it must be pulled to start. Since pushing button can only stop motor, safety measure is obtained.

Included in this same line of controls are momentary, 3-position (start stop); momentary and maintained, 3-position, (1 off 2); maintained, 2 position, (on and off); momentary, (start); momentary,(stop). Made by **The Arrow-Hart & Hegeman Electric Co.**, 101 Hawthorn St., Hartford, Conn.

▲ Mention Item **NED-4505** when writing ▲

POWER RHEOSTAT



By simply enlarging features of 25-watt power rheostat (NED-4139, Nov., '40) this 50-watt power rheostat has been developed. Selected resistance wire is wound on an insulated metal core which distributes heat at intermediate rotational settings. Resistance element is firmly embedded in ceramic housing with an inorganic cement, resulting in solid thermal mass.

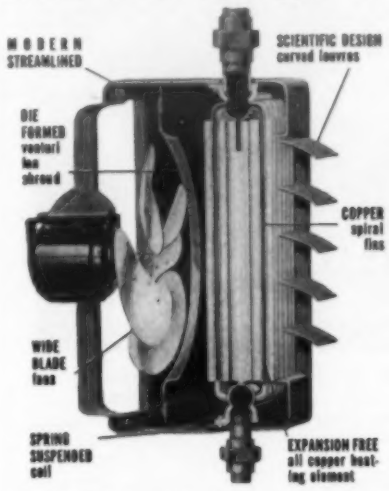
Graphited-copper contact shoe rides collector ring and winding, assuring two positive sliding contacts. Contact pressure is provided by helical spring, concentrically mounted about shaft whose action is evenly distributed by use of tripod-type contact carrier. Contact is insulated from metal shaft by center ceramic insulator, thus providing dead shaft and mounting bushing. Unit is available in any resistance value up to and including 10,000 ohms. Made by **Clarostat Mfg. Co.**, Dept. NED, 4139 N. Sixth St., Brooklyn, N. Y.

▲ Mention Item **NED-4506** when writing ▲

Unit Heater . . . sets new standard of quietness and heating efficiency

This new improved Unit Heater incorporates every Unit Heater advancement that McCord engineers and the experience of thousands of users could suggest. The distinctive modern design with rounded corners combines improved appearance with greater strength and houses an all copper heating unit that is said to set a new standard of heat transfer efficiency and quietness. Individual tubes are used because they have been found to prevent stresses due to unequal expansion. The entire heating unit is spring suspended and floats free in the casing, eliminating rigid connections. Fans used are deep pitched and carefully balanced. A new baked crinkle enamel finish, the latest development in the paint industry, harmonizes with the interior trim and provides a bond against corrosion. These new McCord Unit Heaters are being widely used in shops, restaurants, and offices. This company also recently announced an improved Vertical Projection Type Heater. This type of heater is particularly adapted to the heating of high and wide buildings. **McCord Radiator & Mfg. Co.**, Detroit, Mich.

—Advt.



▲ Mention Item **NED-4507** when writing ▲

LITTELL REELS *for* COIL STOCK

No. 3-G Littell patented Motor-Driven Automatic Centering Reel. Can be used for unreeling materials. Supplies a free loop of stock to automatic feed, regardless of weight of coil.

Coil capacity, 300 lbs.

Will take coils max. width 6½", max. O.D. 48", I.D. 8½" to 21".

A centered coil unreels smoothly for both hand and automatic feeding—for faster, better, more economical production.

Littell Automatic Centering Reels are constructed with four arms which operate all at the same time. A free loop of material is supplied to automatic feed, regardless of weight of coil.

Littell Reels are made in 100-lb. to 20,000-lb. capacities. Automatic spindle and cradle types. Plain and motor-driven. *Request bulletins.*

OTHER PRODUCTS

Littell makes a complete line of Roll Feeds, Dial Feeds, Magazine Feeds, Hopper Feeds, Air Valves and Pres-Vac Safety Feeders for punch presses. *Request catalog.*

ASK FOR BULLETINS 5-D and 5-E

F. J. LITTELL MACHINE CO.

4161 RAVENSWOOD AVE., CHICAGO, ILL.

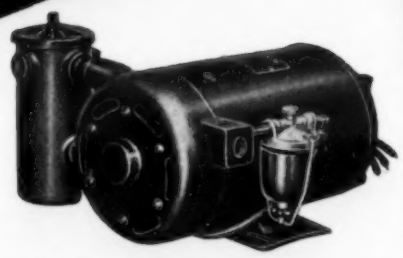
▲ Mention Item **NED-4508** when writing ▲

motor and pump in one Compact unit! (note dimensions of ¼ H.P. Motoair)

- less than 13 inches long
- less than 9 inches high

MOTOAIR PUMP

V for pressure or Vacuum



NO DRIVES
NO BELTS
NO GEARS
NO GUARDS

Proportionately, the most Power-packed pump, for its dimensions we have seen! Used extensively for machine accessory, where air or vacuum is needed, or for portable cleaner-blower purposes.

MOTOAIR DIVISION

NEW JERSEY MACHINE CORPORATION

13th St. & Willow Ave. • HOBOKEN, N. J.

▲ Mention Item **NED-4509** when writing ▲

ROTO - CLONE
Self-Contained UNITS

. . . provide necessary suction to hoods, exhaust and separate the dust, store collected material, and filter the air before discharging into work room. Mobility of unit permits dust producing machines to be placed in most advantageous positions.

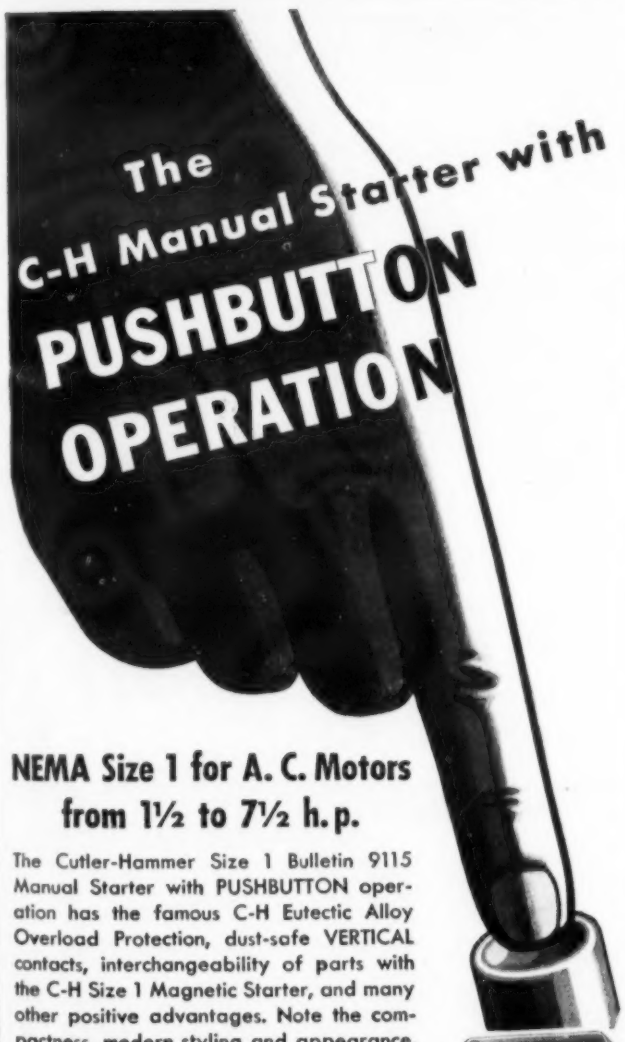
A SIMPLE SOLUTION FOR LOCALIZED DUST PROBLEMS

Self-contained units are designed to exhaust single or small groups of light grinding or polishing operations. Due to its compactness, the Roto-Clone becomes an integral part of the equipment exhausted. Cleaned air from the Roto-Clone discharge is passed through a viscous impingement, washable type filter for final cleaning before it is returned to the work room. Write for Bulletin 275A.

AMERICAN AIR FILTER CO., INC.
391 Central Ave. *Incorporated* Louisville, Ky.

ROTO·CLONE *DUST CONTROL*

▲ Mention Item **NED-4510** when writing ▲

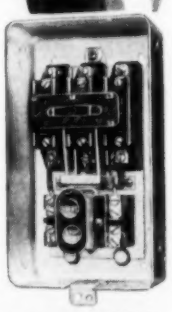


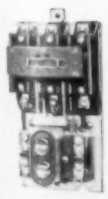
NEMA Size 1 for A. C. Motors from 1½ to 7½ h.p.

The Cutler-Hammer Size 1 Bulletin 9115 Manual Starter with PUSHBUTTON operation has the famous C-H Eutectic Alloy Overload Protection, dust-safe VERTICAL contacts, interchangeability of parts with the C-H Size 1 Magnetic Starter, and many other positive advantages. Note the compactness, modern styling and appearance, and convenience of wiring. The 3-pole pushbutton starter is priced at only $9.50; other sizes in proportion. Write at once for further details. CUTLER-HAMMER, Inc., 1377 St. Paul Ave., Milwaukee, Wis. *Associate:* Canadian Cutler-Hammer, Ltd., Toronto, Ont.

These features tell the whole story

1. Heavy "fine" silver contacts. Easy to inspect and replace. Interchangeable with contacts on Size 1 C-H 9586 Automatic Starters.
2. Clamp type pressure connectors on line terminals.
3. Easy operating, quick break pushbutton mechanism.
4. Rubber mounted panel with effective grounding clip. Loosen one screw to remove panel.
5. Modern enclosing case with exceptionally large wiring space, plenty of knockouts.
6. Heater coils interchangeable with size 0, C-H 9115, sizes 0, 1 and 2, C-H 9586 and many other standard C-H Starters.
7. In 2, 3 or 4 pole construction.





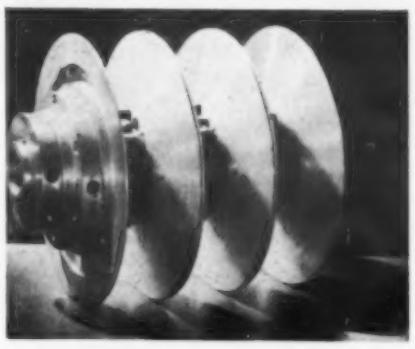
Skeleton Type 3 Pole Pushbutton Starter
Solves costly built-in control problems for busy manufacturers. Same features as in enclosed starters shown.

CUTLER-HAMMER
MOTOR CONTROL
C-H

1892-1942 50th Anniversary

▲ Mention Item **NED-4511** when writing ▲

VARIABLE PITCH SHEAVE

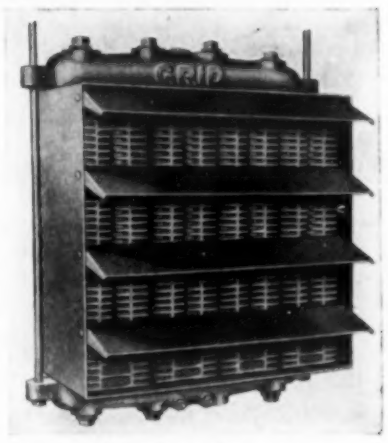


Developed particularly for textile mill machinery and machine tool applications, this wide-range Vari-Pitch sheave affords wide ranges of speed variation for power transmission purposes. Speed variations from 66 to 116 per cent are possible. Sheave is used with companion unit, both of which are grooved for new, wide Texrope V-belts.

Units are manufactured in sizes to fit shafts of all standard NEMA motors from fractional to 30 horsepower capacities. Companion sheaves are available to meet requirements of wide-range applications. Made by **Allis-Chalmers Mfg. Co.,** 6900 Norman St., Milwaukee, Wis.

▲ Mention Item **NED-4512** when writing ▲

UNIT HEATERS



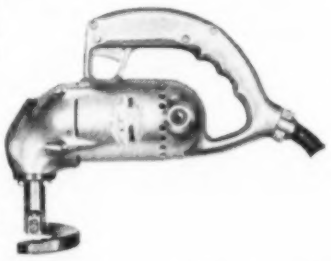
Engineered and constructed to withstand steam pressures up to 250 pounds per square inch, these Grid heaters are now made with cast iron heating sections instead of aluminum heating sections. Unit is free from electrolysis that causes corrosion, leaks and breakdowns. This quality is obtained by having only one type of metal coming in contact with steam or hot water.

Unit is available in eight sizes for practically all industrial heating applications. It is said to be dependable and stable in operation. Made by **D. J. Murray Mfg. Co.,** 139 Murray Ave., Wausau, Wis.

▲ Mention Item **NED-4513** when writing ▲

ELECTRIC SHEAR

Redesigned to improve ease of handling and operating characteristics, this No. 18 Lectro-Shear has been reduced in outer dimensions so that motor housing forms comfortable operating handle. This reduces length and weight of tool, and improves operating balance and control.

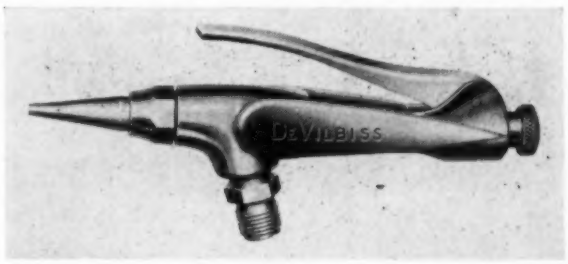


Power capacity of tool is same as in previous models, cutting up to No. 18 gage sheet steel. Larger No. 16 Lectro-Shear has been equipped with improved operating handle which gives this tool better balance and easy control on curved or irregular lines. It is equipped with instant release trigger switch, with locking pin for continuous operation. Handle is so shaped that it can be used over tool or at rear end. Power and capacity is same as in previous models, cutting up to No. 16 gage sheet steel. Made by **Black & Decker Mfg. Co.,** Towson, Md.

▲ Mention Item **NED-4514** when writing ▲

CAULKING GUN

Designed for caulking, cementing and other flowing operations where plastic material such as crack fillers, sealing compounds and heavy paints are used, this type SGF flow gun is



said to feature ease in handling. Unit is particularly useful in doping and cementing fabric parts of aircraft, and for wide variety of similar production jobs.

Unit is small, lightweight, well-balanced, fits hand comfortably and is easily operated. Material is fed to gun under pressure and is extruded into cracks, grooves, and over seams which are to be sealed. Volume of flow can be regulated and controlled either by regulation of pressure or by simple knurled nut adjustment of fluid needle. Nozzles for all types of materials are also available. Made by **The DeVilbiss Co.,** 301 Phillips Ave., Toledo, O.

▲ Mention Item **NED-4515** when writing ▲

NEW PORTABLE CONVEYOR
LOADS • UNLOADS • STOCKS
SIMPLER · EASIER · QUICKER · CHEAPER

- Portable ROLL-OR-WHEEL Conveyor, set up 60 feet inside building, delivers packages to trucker at loading platform. Quick, Safe, Convenient, Low Cost!
- In 10-ft., straight and curved sections, quickly easily coupled together for any length. Ideal for narrow passages, cramped quarters. Rugged!

Write for descriptive Bulletin No. 8 giving details, specifications and applications.

THE E. W. BUSCHMAN CO., INC.
418 NEW STREET CINCINNATI, OHIO

▲ Mention Item **NED-4516** when writing ▲

Write for Free CATALOGUE

Machine Finished

It's easy to avoid delay in securing plain bronze bearings. Specify JOHNSON *General Purpose* and your order will be shipped from stock. Every bearing is machine finished ready for assembly. Over 800 sizes to choose from . . . twenty two warehouse stocks to serve you. Write for new catalogue.

SLEEVE BEARING Headquarters
JOHNSON BRONZE CO.
530 SOUTH MILL STREET NEW CASTLE, PA.

▲ Mention Item **NED-4517** when writing ▲

▲ Mention Item **NED-4518** when writing ▲

BUY

WAR BONDS

TILL IT

HURTS

(THE AXIS)

★

Space by courtesy of

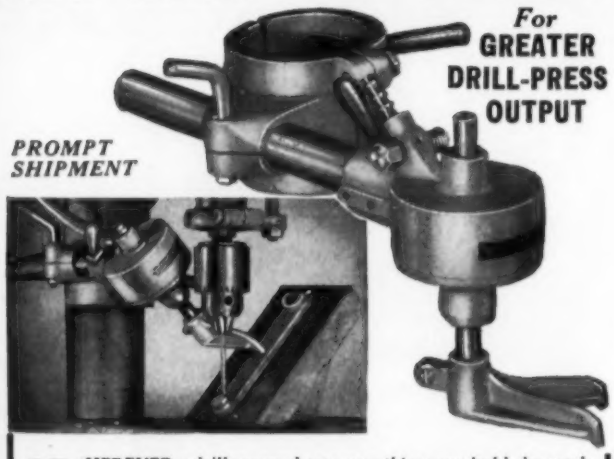
M. E. CUNNINGHAM CO.
MANUFACTURERS OF MARKING DEVICES
151 E. CARSON ST. PITTSBURGH, PA.

▲ Mention Item **NED-4519** when writing ▲

NEW MEAD AIR-CLAMP

For GREATER DRILL-PRESS OUTPUT

PROMPT SHIPMENT



WHEREVER a drill comes down, *something* must hold the work. Wherever a drilling jig is required, *Air-Clamp* will simplify it. Wherever *speed* is desired, *Air-Clamp* will produce it. *Air-Clamp* holds with relentless pressure; it is undisturbed by size variations (such as in castings), it scoffs at vibration (how many drills have been broken due to faulty holddowns?), chatter, snagging. *Air-Clamp* holds work of any size or shape in any position, at any angle. It can pay for itself on a single fixture; it can save its cost on a few days' drill-press output. It reduces operator fatigue. It saves hours and dollars in drafting-room, jig department, tool room and production line. *Air-Clamp* fits any drill-press having a cylindrical column. Special fixtures for Tee-slotted tables, light milling work, etc. Hand and/or foot control. Shipped on approval to responsible concerns.

FOOT AIR CONTROL READY!

For air-operated devices. Frees hands—Speeds up work! Two types: Model "ON" releases work when pedal is pressed . . . Model "OFF" holds work when pedal is pressed. Low priced. Write!

MEAD SPECIALTIES CO.
15 South Market St., Dept. 9-NA, Chicago

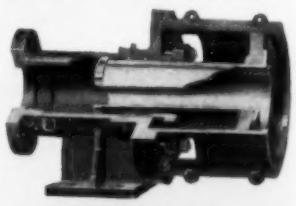
▲ Mention Item **NED-4520** when writing ▲

HELPS "KEEP 'EM FLYING"

BY SAFEGUARDING VITAL STEAM, HOT WATER, FUEL OIL AND GASOLINE LINES

ADSCO INTERNALLY EXTERNALLY GUIDED JOINT

ADSCO Internally-Externally Guided Joint helps "keep 'em flying" by safeguarding service lines at Army and Navy Air Bases—as well as in hundreds of miles of other vital service lines in important war plants and projects. Completely guided. Meets Army and Navy specifications. Approved by leading mechanical engineers. Write for Bulletin 35-20D.



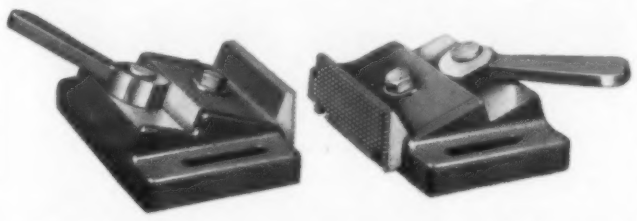
AMERICAN DISTRICT STEAM COMPANY NORTH TONAWANDA, N. Y.

Making "UP-TO-DATE" Steam Line Equipment for over 60 years

▲ Mention Item **NED-4521** when writing ▲

QUICK ACTING VISE JAWS

Designed for clamping parts to be machined securely to face of work table, these E.C. quick acting vise jaws are available in sets. Combination consists of two moving and two



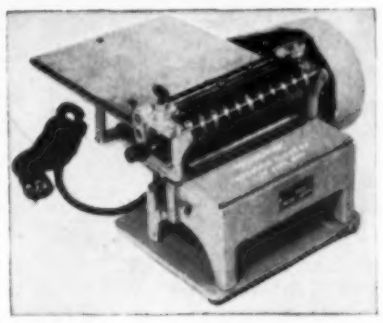
stationary jaws as shown. Where large work is to be clamped, several sets may be used simultaneously. Available sizes have 2¼, 3 and 5-inch jaw faces.

Clamping jaw moves downward at angle of 20 degrees, assuring that work is held securely against table or fixture when eccentric cam lever is tightened. Clamping jaws are fitted with compression springs which automatically return them to neutral position when lever is released.

Stationary jaws are made of cast steel and serrated face of jaw is hardened. Adjustable clamp base is made from semi-steel. Eccentric cam action movement is approximately ¼ inch. Slots in base permit adjustment on table of 2 inches. Two bolts are furnished with each jaw for fastening unit in T-slots of table. Made by **Ekstrom, Carlson & Co.**, Parmele at Railroad Ave., Rockford, Ill.

▲ Mention Item **NED-4522** when writing ▲

ELECTRIC LABEL PASTER

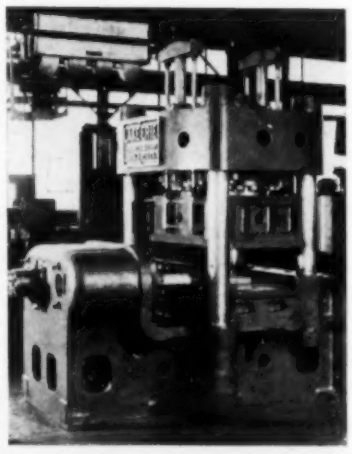


Application of glue to paper, light cardboard and cloth labels, up to 6 inches in width, is facilitated with this Whirlwind electric label paster. Embossed paper and light metal seals can be handled, also. All parts are removed easily for inspection and cleaning. Control of glue application is afforded by regulating contact between dual glue rollers. This design provides economical glue consumption and permits regulation in accordance with type of label used. Tendency of label to curl, wrinkle or blister is eliminated.

All glue passes between rollers which act as grinding mill and pump combined, removing lumps, keeping glue mixed and free flowing. Stainless steel pickers, shaped to repel glue, permit quick removal of labels. Power is supplied by 1/20-horsepower motor which will operate from any light circuit. Explosion-proof motors are available where required. Machine occupies about one square foot of bench space. Made by **Scientific Filter & Materials Co.**, 1 Franklin Sq., New York City.

▲ Mention Item **NED-4523** when writing ▲

PLASTIC MOLDING PRESS



Developed for molding phenolic plastics, this 450-ton angle press is hydraulically operated. Machine is complete and may be connected directly to accumulator pressure system.

Platen measures 24 by 50 inches. Vertical stroke is 12 inches and horizontal stroke is 10 inches. Main bed is of one-piece cast construction. This design assures maintenance of correct alignment of both vertical and horizontal operating units. Made by **Lake Erie Engineering Corp.**, 501 Woodward Ave., Buffalo, N. Y.

▲ Mention Item **NED-4524** when writing ▲

FLUORESCENT FIXTURE

All models of Day-Line V-series industrial fluorescent fixtures are now equipped with reflectors made of non-critical materials. Reflection factors of over 81 per cent are obtained in these pressed wood reflectors through use of enamel finish, baked at 325 degrees Fahr. Savings of 64 per cent of steel normally required in fixtures is obtained with this construction.

Standard servicing and installation features are retained, including easy removal of reflectors and starters, and simple suspension methods. Series includes units for individual or straight-line mounting for two or three 40-watt fluorescent lamps, or for two 100-watt lamps. Made by **Day-Brite Lighting, Inc.**, 5428 Bulwer Ave., St. Louis, Mo.

▲ Mention Item **NED-4525** when writing ▲

TWO NEW COMPOUNDS PICK UP OIL & GREASE

No. 1 for Oily and Greasy Floors - - -
No. 4 for Soluble Oils with Water Dilution

Two "SAFETY" floor cleaning compounds for oily and greasy floors are in wide use, reducing accidents, eliminating fire hazards, replacing weekly scrubbings with caustics and lyes.

Both compounds are natural products, merely being sprinkled on floors and allowed to absorb oils and greases which they do in a few minutes, or hours depending on concentration. In some cases cleaning compounds can be re-used many times.

These inexpensive compounds are dustless, dry material, having a particularly high affinity for oil and grease. They are non-inflammable and contain no acid or other artificial ingredient. Fire hazards from oil and grease impregnated flooring are entirely eliminated.

Particularly important is the fact that slipperiness due to oil and grease is immediately eliminated with a thin layer of either compound.

Compound No. 1 is effective on ordinary oils and greases while compound No. 4 is for soluble oils in conjunction with water dilution.

Write today for complete information on these "SAFETY" floor cleaning compounds . . . **Fisher Equipment Co.**, 6315 Ellsworth Ave., **Detroit, Mich.** —Advt.

▲ Mention Item **NED-4526** when writing ▲

Another NEW "Bakelite" Plastic

A PREFORMABLE impact-resistant molding material

IMPACT resistance is an essential requirement for many wartime plastic products. Until recently the use of impact-resistant molding materials involved the comparatively slow and laborious method of weighing each charge. Because of their fibrous fillers, many of these materials have been difficult and even impossible to preform in automatic tabletting machines.

With the development of XM-15000, however, Bakelite Plastics Headquarters now makes available an extremely tough yet easily preformed plastic. Offering three to four times greater resistance to impact than the general-purpose wood flour-filled phenolics, it can be automatically and uniformly tabletted even on high-speed rotary preforming presses.

Since XM-15000 is a diced or macerated form of the well-known BAKELITE molding blanks, it provides all of the toughness, water resistance and other physical characteristics for which these unique materials are noted. Its dielectric strength and volume resistivity are high, and may be doubled when it is preheated for 30 minutes at 220 deg. F. Because of the absence of fabric fillers, its surface appearance is comparable to that obtained with general-purpose phenolics.

Investigate this new impact-resistant material for essential applications. For further information, write Department 16.

3 WAYS Bakelite Plastics Headquarters can help you speed production and conserve strategic materials

1 With helpful, technical booklets on the various types and forms of BAKELITE plastics, and their fabrication.

2 With help in utilizing present plastics and developing new specialized formulas for most efficient production.

3 With prompt field engineering service to manufacturers engaged in war production.

BAKELITE CORPORATION
Unit of Union Carbide and Carbon Corporation
UCC
30 E. 42nd ST., NEW YORK

BAKELITE PLASTICS HEADQUARTERS

The word "Bakelite" and the identifying product symbol are registered trade-marks of Bakelite Corporation

▲ Mention Item **NED-4527** when writing ▲

Non-Ferrous Foundrymen Will Agree--
A RELIABLE PYROMETER
IS INDISPENSABLE!

For sound non-ferrous castings . . . and for lower costs . . . you must have a reliable pyrometer . . . one that gives accurate readings yet one that will stand up under hard usage on the pouring floor and in the furnace room. The "Alnor" Pyro-Lance is the answer.

SHOCK RESISTING MOVEMENT

is a feature of the "Alnor" Pyro-Lance. Two portable styles available, both have rugged, shock-resisting features and high accuracy that enables you to cast at lowest cost by reducing scrap losses, cutting fuel bills, improving castings and speeding production. Type 2981 illustrated is self-contained and uses the enclosed couple, gets true metal temperatures BELOW THE SURFACE, unaffected by dross and lasts longer than bare-wire styles.

Illinois Testing Laboratories Inc.
430 N. La Salle St. Chicago, Ill.

▲ Mention Item **NED-4528** when writing ▲

He is your first line of defense against waste time and waste materials. He can clean large areas at less cost, remove dirt and dust before painting, or move sand, metal chips, soapstone by the ton. He can eliminate the principal hazards of your plant.

And he can clean greasy floors, get inside your most complicated machinery with a powerful vacuum, or pick up the finest dust in your precision departments.

Watch this man and what he is doing for others, because he is probably coming to your plant.

WATCH THE MAN WITH THE HOSE

Ask for Bulletin 120-NE.

5-219-E

SPENCER HARTFORD — CENTRAL AND PORTABLE VACUUM CLEANING SYSTEMS

THE SPENCER TURBINE COMPANY, HARTFORD, CONN.

▲ Mention Item **NED-4529** when writing ▲

BEARING SERVICE FOR WAR INDUSTRIES

★ Ask your local wholesaler for completely machined Bunting Standardized Cast Bronze Bearings. Available in hundreds of sizes for machine tools, electric motors and industrial machinery engaged in war production. Also fully machined Bunting Tubular and Solid Bearing Bronze Bars. Write for catalog. The Bunting Brass & Bronze Company, Toledo, Ohio. Warehouses in All Principal Cities.

Bunting
BRONZE BUSHINGS • BEARINGS • PRECISION BRONZE BARS

▲ Mention Item **NED-4530** when writing ▲

RIGHT-ANGLE NUTS

Developed for blind right-angle attachments, this Angle Anchor Speed Nut combines standard U type nut with cadmium plated angle bracket. This unit is for use where access is from only one side.

Available for use with 6-32 and 8-32 machine type screws and 4Z, 6Z and 8Z sheet metal screws, these units also come in 86, 90 and 94-degree angles. Providing spring-tension grip that permanently resists vibration, fasteners are particularly suited for attachment of junction box covers, switch box covers, fairings and other angular attachments.

Standard shape and rivet hole spacings make unit interchangeable with other angle lock nuts. Made by **Tinnerman Products, Inc.**, 2044 Fulton Rd., Cleveland, O.

▲ Mention Item **NED-4531** when writing ▲

MULTIPLE-ANGLE DRILL

Featuring drill head which can be set any angle through 360 degrees, these pneumatic multiple-angle Cleco drills, models 9D010 and 9D020, will fulfill function of several angle drills. Head swivels in two planes. Besides facility with which it can be set for drilling at any angle, it can also be turned to any position relative to location of throttle lever.

Design permits fingers of operator's hand to be brought close to point of application, increasing accuracy of handling drill, and insuring more speed in changing from one position to another.

This drill weighs 2½ pounds and is about 8 inches long when set for drilling in direction parallel to center line. Chuck takes ¼ inch drill. Speed of model 9D010 is 1000 revolutions per minute. Speed of model 9D020 is 2000 revolutions per minute. Made by **Cleveland Pneumatic Tool Co.**, Marble Ave. & E. 78 St., Cleveland, O.

▲ Mention Item **NED-4532** when writing ▲

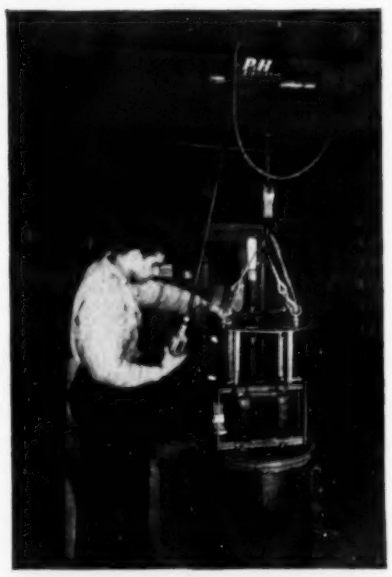
TIMEKEEPER'S DESK

Intended principally as timekeeper's or foreman's desk, this stand is 48 inches high at front, 55 inches high at back and has writing surface of 22 by 24 inches. Two drawers are so constructed as to slide easily. They are arranged with dividers to hold various sizes of standard forms and cards. Drawers, which are fitted with brass pulls, may have individual locks for each or with locks arranged for use of master key.

Easy rolling casters on front have locks and those at rear are stationary. Standard finish is olive green, though units are also available in gray or black. Made by **George Koch Sons, Inc.**, 2120 W. Pennsylvania St., Evansville, Ind.

▲ Mention Item **NED-4533** when writing ▲

ELECTRIC HOIST



Designed for quick interchangeable mounting, either trolley, hook, rigid or bolt, this Zip-Lift hoist is of 1-ton capacity. This model is being added to regular line of lift equipment.

It is equipped with same features as other models of this type. It has full magnetic push-button control, pre-formed non-spinning hoist cables, 3-way interchangeable mountings, safety type limit switch, double brakes and dust and weatherproof, fully enclosed construction. Made by **Harnischfeger Corp.**, 4537 W. National Ave., Milwaukee Wis.

▲ Mention Item **NED-4534** when writing ▲

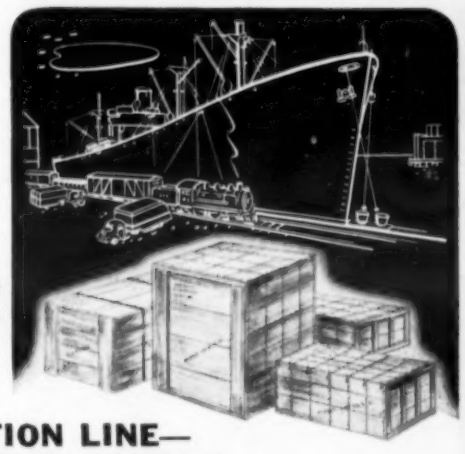
REDUCE SKIN AFFECTIONS AND LOST MAN-HOURS

Dermatitis—skin affection is said, by physicians, to be a serious factor in lost man-hours—and that sanitary washing is a recognized preventive. Clean, running water is furnished each of the 8 to 10 who wash simultaneously at a Bradley Washfountain. Each Bradley takes the place of 8 to 10 single person wash basins—cutting the use of piping and piping connections by 80 to 90 per cent. The deep self-flushing bowls are continuously kept clear of water collection and possible contamination. They and their pedestals are constructed of precast stone and marble—thus saving more critical materials.

Write for "Picture Book of Installations" . . . BRADLEY WASHFOUNTAIN CO., 2253 W. Michigan Street, Milwaukee, Wisconsin.

BRADLEY washfountains

▲ Mention Item **NED-4535** when writing ▲



Win **ON THE PRODUCTION LINE— and SHIPPING FRONT . . .**

On land and sea, General Shipping Containers are helping to make Victory on production lines count—by helping to assure Victory on the shipping front.

Engineered to meet specific requirements, General Containers conserve vital man hours, save space in ships, trucks, trains and on the shipping room floors. Handling is easier and faster, and the product is assured of adequate protection with minimum tare weight.

General Boxes, Crates and Special Containers can help you to get your vital shipments to Uncle Sam on time—or to war products assembly lines. Thirteen strategically located plants, blanketing industrial America, make it possible to supply fast service. Write today.

GENERAL BOX COMPANY

General Offices: Corner of Dearborn and Illinois Streets, Chicago, Ill.
District Offices and Plants: Brooklyn, Cincinnati, Detroit, East St. Louis, Kansas City, Louisville, Milwaukee, New Orleans, Sheboygan, Winchendon, Continental Box Company, Inc.: Houston, Dallas

▲ Mention Item **NED-4536** when writing ▲

Cut-Away View of Ohmite Rheostat Shows How Smooth, Close Control Is Permanently Built-In

The wire is wound on a solid porcelain core, locked in place and insulated by Ohmite vitreous enamel. Nothing to shrink, shift or deteriorate. Self-lubricating metal-graphite contact, with universal mounting, insures perfect contact, prevents wear on the wire. High-strength ceramic hub insulates shaft and bushing. Many other features.

Ten wattage sizes from 25 to 1000 watts, in many resistances, in stock and special units. Rheostats produced to Government specifications or engineered for you.

Write on company letterhead for complete 96-page Catalog and Engineering Manual No. 40.

OHMITE MFG. CO., 4843 Flournoy St., Chicago, Ill., U.S.A.

Be Right with OHMITE
RHEOSTATS • RESISTORS • TAP SWITCHES

▲ Mention Item **NED-4537** when writing ▲

SIZED RIGHT!

means that your material will find a ready market, meeting the standards of sizing which are going higher and higher. Jeffrey-Traylor (Patented) electric vibrating screens will help you make those precise specifications — have a high 'through screen' capacity in relation to feed rate.

All J-T screens, single or double deck styles, use electric vibration to control tonnage. For fine sizing—two types conveyanscreen with vibrator mounted above screen sash; for coarser and intermediate sizing—FB gravity type with vibrator or power unit surrounding screen sash. Heller piano wire cloth—meshes 3/4 to 150 mesh—available. Send for engineering data.

The Jeffrey Manufacturing Company
952-99 North Fourth St. Columbus, Ohio

Baltimore, Birmingham, Boston, Buffalo, Chicago, Cincinnati, Cleveland, Denver, Detroit, Harlan, Houston, Huntington, W. Va., Milwaukee, New York, Philadelphia, Pittsburgh, St. Louis, Salt Lake City, Scranton

Jeffrey Manufacturing Co., Ltd. of Canada, Head Office & Works: Montreal. Branch Offices: Toronto, Calgary, Vancouver.

▲ Mention Item NED-4539 when writing ▲

free book describes
IMPROVED TRAPPING
for unit heaters

Do you want to know the latest methods of trapping unit heaters? Are you interested in checking the efficiency and economy of your unit heater installation? Then we invite you to send for the newest edition of "How To Choose A Steam Trap." In this book are pages devoted to improved trapping for unit heaters—the importance of correct trapping—why rapid air removal is necessary to prevent corrosion—correct method of selecting the proper size trap for all purposes to get maximum results with minimum fuel. "How To Choose A Steam Trap" is complete with tables giving specifications, capacities, and pressures. It shows you why the Super-Silvertop Steam Trap with its simplified piping, guided bucket, and smooth large passages is the modern, better trap. Send in your request today for a copy with our compliments.

THE V. D. ANDERSON COMPANY
1932 West 96th Street • Cleveland, Ohio

▲ Mention Item NED-4540 when writing ▲

. . . instead of SOLDERING, consider RESISTANCE WELDING

WITH tin and time at a premium, many manufacturers who formerly used soldering now use resistance welding, equipped with G-E thyratron control. It cuts assembly time in half; it entirely eliminates the need for tin.

The nearest G-E office will be glad to help you figure out which type of control will best fit your work. Call or write for copies of Bulletins GEA-3045A and 2791C. *General Electric, Schenectady, N. Y.*

GENERAL ELECTRIC
845-13-8748

▲ Mention Item NED-4541 when writing ▲

POLISHING BRUSH

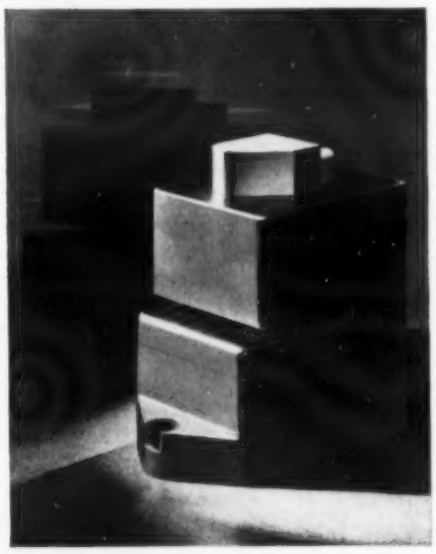
Eliminating stress concentration points on metal surfaces, this Tampico fiber polishing brush is used for removing rough tool marks and finish defects in aircraft and other machine parts where stress failure is important. Manufacturer claims that polishing and surface blending of finished parts removes stress concentration points and greatly increases service life of part.

Brushes, made of tampico fiber in form of cylinders and flat discs, are used with finely powdered alundum suspended in suitable pasty material. Special treatment of brush fibers prevents fluttering while in motion. This method permits polishing of connecting rod in fraction of time normally required

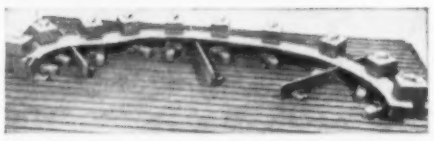
Brush does not impart luster as high as that secured with other polishing methods, but surface is more suitable for machine parts. However, finish is so uniform that inspection is made by light reflection method which reveals irregularities in order of 0.000008 inch. Made by **The Osborn Mfg. Co.**, Brush Div., 5403 Hamilton Ave., Cleveland, O.

▲ Mention Item NED-4542 when writing ▲

NOTCHING DIE



For notching aircraft bulkhead clearances and similar notching operations, this die has been added to Wales line. Nothing is attached to ram of machine. Self-contained holder maintains constant punch and die alignment. Lower illustration shows dies clamped in position and bulkhead inserted in dies ready for punching.

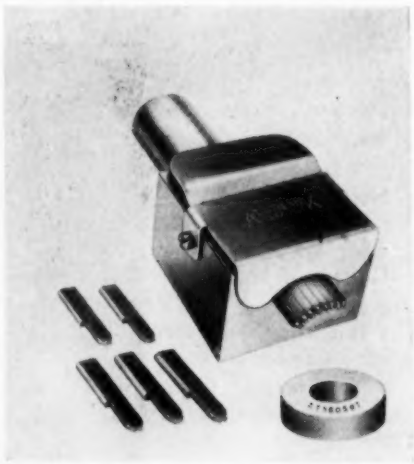


Top portion of punch fits into notches in templet for instant resetting and removing from rails, templates or T-slotted plates. Notching units set up in series, as illustrated, can be used for every size and shape of bulkhead. Standard and irregular notching patterns are notched in one stroke of press ram.

Cut is clean and accurate. Faster tooling and reduced die expense and minimized set up time increases production. Made by **The Strippit Corp.**, 1200 Niagara Street, Buffalo, N. Y.

▲ Mention Item NED-4543 when writing ▲

MARKING TOOL



Equipped for marking metal ordnance parts in limited areas, this type holder is made of one piece shock resisting alloy tool steel. Unit is furnished with either press shank or hand style to fit hand for striking with hammer. Steel clip holds interchangeable type in place and thumb pressure permits changing of type. Holder is solidly constructed with no holes or screws to loosen in use and shank is turned from solid steel stock.

Type is of segment shape and has heavy shoulder feature to give increased strength. All characters are engraved in clear Gothic style with strong bevel. Type is tapered and user can see place of stamping.

Holders are made to any desired curvature and capacity. Made by **The Acromark Corp.**, 7-11 Morrell St., Elizabeth, N. J.

▲ Mention Item NED-4544 when writing ▲

Explosion-resisting Water-tight
LEVER-OPERATED **FLOAT SWITCHES**

CLASS 9048
TYPE AW • WATER-TIGHT
TYPE AR • EXPLOSION-RESISTING

Where standard enclosures are inadequate because of unusual operating conditions such as explosive or moisture-ridden atmospheres—the Class 9048 line offers an effective and economical answer to your float switch problems.

SUMP OR STANDARD OPERATION.

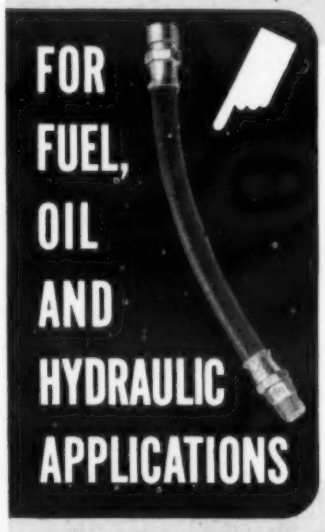
RATINGS: Single Phase: 1 H. P. 110V., A. C. and 2 H. P. 220V., A. C. Polyphase: 3 H. P. 220V., A. C. Direct Current: ½ H. P. 115-230V.

WRITE FOR BULLETIN 555

SQUARE D COMPANY
REGULATOR DIVISION
6060 RIVARD ST., DETROIT, MICH.

▲ Mention Item NED-4545 when writing ▲

FLEXIBLE HOSE ASSEMBLIES



WEATHERHEAD non-metallic flexible hose has wide applications for automotive, aviation, and machine uses. Oil-proof—gasoline-proof—this hose is supplied where high pressures are involved in complete assemblies with fittings attached.

Weatherhead also provides low pressure hose in any lengths and required fittings. Write for details, telling us your hose requirements.

THE WEATHERHEAD COMPANY
300 East 131st Street • Cleveland, Ohio
World's Largest Producers of Fittings

▲ Mention Item NED-4546 when writing ▲

Uniformity, dependability, high quality . . . these features make J-M Service Sheet the No. 1 Sheet Packing for industry.

More and more engineers are safeguarding gasket performance by switching to J-M Service Sheet. Basically asbestos, this tough material stands up longer, is completely uniform. Furthermore, it can be stocked indefinitely, for it does not deteriorate with age.

If you're not now using J-M Service Sheet, it will pay you to investigate. Write for the new J-M Packing Catalog PK-12A. Address Johns-Manville, 22 E. 40th Street, New York, N. Y.

Johns-Manville PACKINGS & GASKETS
THERE'S A DISTRIBUTOR NEAR YOU

▲ Mention Item NED-4547 when writing ▲

COLD FORMED TANK HEADS

Tank and boiler heads, *cold formed in solid dies,* outside *diameters from 6 inches to 60 inches,* standard gauge *steel No. 16 to ½ inch,* are available in quantities of *ONE or A CAR LOAD.*

Dies on hand to make flanged and dished, flat flanged, dished only, flanged only, flanged and semi-dished, parabolic and double-dished types.

Heads made by cold forming imparts added structural strength but necessitates the use of high quality materials. Prompt shipment can usually be made as we have the *largest stock and range of tank head dies in the country.* Water heater tank heads are designed and made to your specific requirements. Write today for our latest bulletin. **The Commercial Shearing & Stamping Co.,** Tod Lane, Youngstown, Ohio.

▲ Mention Item **NED-4548** when writing ▲

ATTIC VENTILATOR PARTS

Makers of attic ventilators are finding that replacement of wood and cast parts with pressed steel parts are saving them considerable money. Venturies, fan blades, spiders, housings and other parts can be supplied as *production items* by our well-equipped shop. Inquiries on these and similar parts are solicited . . . *without obligation.* **The Commercial Shearing & Stamping Co.,** Tod Lane, Youngstown, Ohio. —Advt.

Mention Item **NED-4548-A** when writing ▲

For Hydraulically Driven Machinery

VICKERS HYDRAULIC (OIL) PUMPS

Vickers Vane Type Pumps, having the exclusive pump design features which have revolutionized oil hydraulic power methods, are available in hundreds of sizes and types:

1 G.P.M. to 60 G.P.M. Pumps, to 1000 P.S.I. . . . . Bulletin 40-25
Two-Stage Pumps to 2000 P.S.I.—2 G.P.M. to 57 G.P.M. . . . . Bulletin 40-16
Two-Pressure Large-Small Volume Pumps . . . . . Bulletin 38-14

Applications include hydraulically operated machine tools, presses, plastic and die casting machines, special processing machines, road machinery, etc.

Write for information covering your requirements.

VICKERS *Incorporated*

1456 Oakman Blvd. • DETROIT, MICHIGAN

▲ Mention Item **NED-4549** when writing ▲

You can *Hoist, Swing* and *Travel* (at the same time) with a LORAIN CRANE

● Here's an advantage that pays off big in more efficient, faster operation. No traveling through the swing gears, no lost time in shifting gears. The 3 levers in front of the operator give him instant control of hoist, swing, travel (or boom derricking), and he may use each singly or any two together or *all three at one time,* with each operation under independent control.

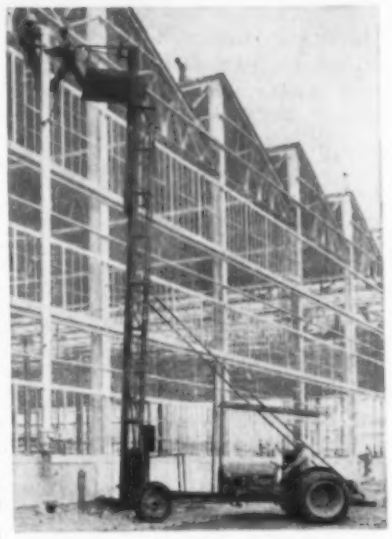
This 3-in-1 feature will permit you to do many *new* crane jobs and to move more material faster, at lower cost. Write for a Lorain Crane Bulletin today.

The THEW SHOVEL COMPANY
Lorain, Ohio

THEW-LORAIN

▲ Mention Item **NED-4550** when writing ▲

PORTABLE ELEVATOR



For use on maintenance and construction work, this portable elevator not only raises materials for installation or lowers them for removal, but it also gives large platform footing as well. Platform size is 36-inches long by 72-inches wide.

General uses of this stacker are installation of sprinkler systems, wiring, lighting fixtures, and other maintenance jobs. Unit has capacity of 1500 pounds and has an overall height of 40 feet, 4 inches. Hoist will operate on 3-horsepower 110-volt direct current motor. Lifting speed is approximately 30 feet per minute.

Illustration shows PBT Stacker mounted on large tractor. Push button control, located at right of truck operator, was used in this case to allow man riding tractor to control raising and lowering of load. Direct current generator, mounted on truck supplies power.

Portable elevator may be built with other capacities, lower collapsed height and various platform sizes. It can also be made to operate on its own wheels as conventional stacker, in which case base width would be 7 to 8 feet. Made by **Lewis-Shepard Sales Corp.,** 302 Walnut Street, Watertown, Mass.

▲ Mention Item **NED-4551** when writing ▲

HONOR ROLL PLAQUE

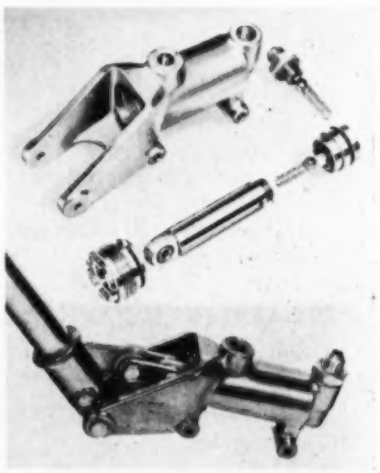
For companies wishing to honor those employes who have entered armed forces of nation, this honor roll plaque is made of crystal clear plastic sheet. It is suitably inscribed and mounted on finely finished walnut panel.

Directly below and arranged in columns are mounted individual plastic name plates on which are inscribed names of men in service. Additional name plates with pins required for mounting can be obtained as needed and easily attached to walnut panel.

Firm name also appears in gold on plastic plate. Color scheme is in gold, red and blue. Sizes are 10 by 16 inches for 16 names and up to 22½ by 42 inches for 200 names. This plastic unit is made of only non-critical materials. Made by **M. M. Gottlieb Associates, Inc.,** Allentown, Pa.

▲ Mention Item **NED-4552** when writing ▲

HYDRAULIC EQUIPMENT



Available in three models, all with 1½ cubic inch displacement, these hydraulic pumps make use of pressure molding for pump body and fulcrum. It is claimed that use of pressure molding greatly reduces amount of machining normally required on pump bodies and at same time is extremely light in weight.

Plunger assembly of pump contains number of advanced engineering principles which has reduced number of parts in pump assembly and check valves. Including handle and fulcrum, there are only 13 different parts in entire pump unit. This simplifies production and servicing as well as contributing to dependability.

This series of pumping units is labeled 66-2000 and they are available with mounting pads and port openings to meet customer specifications, which permits their interchange in current production aircraft. Made by **Harvill Aircraft Die Casting Corp.,** Dept. NED, 6251 W. Century Blvd., Los Angeles, Calif.

▲ Mention Item **NED-4553** when writing ▲

▲ Mention Item **NED-4554** when writing ▲

YOU CAN'T AFFORD OIL DERMATITIS NOW

...Wescol-ize Your Cutting Oil!

Write for copy of this folder

You need healthy man power now—and an absence of compensation claims at all times.

WESCOL*

is a special disinfectant of high power which mixes with and helps keep cutting oil free of harmful pathogenic organisms. Oil thus rendered non-infectious still retains 100% of its cutting-cooling efficiency. You merely attack the hazard of oil dermatitis in a simple manner—and at low cost.

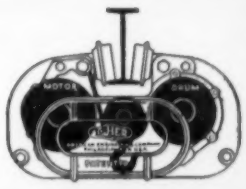
*Trade Mark Reg. U. S. Pat. Office

WEST DISINFECTING COMPANY

Dept. DE, 42-16 West St., Long Island City, New York

▲ Mention Item **NED-4555** when writing ▲

Look in classified telephone directory under "A-E-CO LO-HED HOISTS" for your nearest representative.



It took BALANCE to create this electric hoist

In a hoist, balance is mighty important for good operation. The Lo-Hed hoist was the first to achieve balance in a new way. It was the first hoist designed around the supporting beam . . . first to place motor and drum on opposite sides of and parallel to the beam . . . first to draw the hook up close to the beam . . . first to use a straight-line all spur gear drive. Time and time again, Lo-Hed has been called the "most logically designed hoist".

The Lo-Hed hoist is also a brute for punishment, as service records show. And we're building it today with the same fine precision and quality materials as always—to last for years to come. Write for the Lo-Hed catalog.

AMERICAN ENGINEERING COMPANY

AMERICAN ENGINEERING COMPANY
2411 Aramingo Avenue, Philadelphia, Pa.
☐ Please send me your complete catalog of LO-HED HOISTS.
☐ Ask your representative to get in touch with me promptly.
Name.....
Company.....
Street Address.....
City..... State.....

▲ Mention Item **NED-4556** when writing ▲

DRAWN OR IMPACT-EXTRUDED

Containers

OF ALUMINUM, COPPER, BRASS, ZINC OR STEEL

Produced quickly and at a comparatively low cost

★

Seamless containers can be furnished flared, beaded and with holes or other such shapes stamped in any portion of the body, in lengths up to 10 inches of aluminum and zinc, and up to 5½ inches of other metals. Impact extrusion of aluminum and zinc requires but one set of tools and one operation, and is low in cost.

by Victor

If you use containers of this or similar type, let our engineers quote you on your needs. We'll be happy to study your individual problem without obligation.

VICTOR METAL PRODUCTS, INC.
190 DIAMOND ST., BROOKLYN, N. Y.

▲ Mention Item NED-4557 when writing ▲

NEW TYPE PALLET aids WAR EFFORT

Here is a new combination wood-steel pallet of bolted construction which permits easy replacement of top and bottom wood slats. Steel-end reinforcements protect the pallet boards from damage by power-fork trucks.

This new unit is designed to aid the war effort by conserving steel and speeding up handling. It is only one of many Union Metal special materials handling units—pallets, skids, and boxes—all designed to save you time and money.

THE UNION METAL MANUFACTURING CO.
CANTON, OHIO

▲ Mention Item NED-4558 when writing ▲

BAY STATE
ABRASIVE PRODUCTS CO., WESTBORO, MASS. U.S.A.

▲ Mention Item NED-4559 when writing ▲

PRECISION GAGE

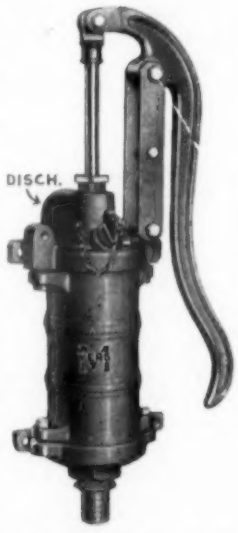
Convenient and accurate checking of large and small lots is possible with this precision type Comparator. Each small line of scale represents 0.0001 inch and displacement of 0.001 inch on measuring pin cause dial hand to move one full inch. Measuring capacity is plus or minus 0.003 inch, or plus or minus 0.05 millimeter.

Plan parallel ground and lapped table is built into machined cast iron base. Table has vertical micrometer adjustment for accurate setting of gage to zero by means of master gage or Johanson block. Disc mounted on axis of indicator hand rotates in permanent magnetic field, bringing hand to immediate rest when in use.

Lever on housing permits lifting of measuring pin before insertion of piece to be checked, eliminating shock to instrument and wear on pin. Limit hands in form of sliders permit indication of range of tolerance required. Working height capacity is up to 12 inches; throat depth is 4 inches; and working circle by swiveling head is 10 inches. Made by **American Measuring Instruments Corp.**, 40 W. Twenty-second St., New York City.

▲ Mention Item NED-4560 when writing ▲

HAND FORCE PUMP



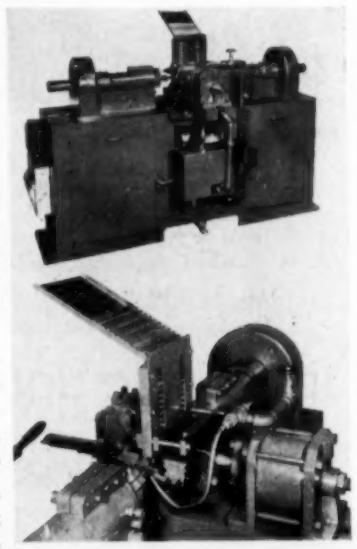
Applicable for installations requiring hand operated suction pumps, this force pump has suction lift of 25 feet and discharges 1/5 gallon per stroke. Brass lined cylinder has bore of 3½ inches and stroke of 5 inches. Unit is designed for side mounting.

Prime plug is standard equipment. Removal of single bolt permits changing of handle to either left or right for most convenient operation. Mounting brackets are provided for attaching unit to any vertical surface. Handle, oscillator links, upper cap and lower cap are held in place by corrosion resistant bolts.

Oversize packing gland is fitted with brass nut, facilitating keeping packing tight or replacing when needed. Discharge is tapped for 1¼-inch pipe and suction is fitted for 1¼-inch hose. Made by **The F. E. Myers & Bro. Co., Ashland, O.**

▲ Mention Item NED-4561 when writing ▲

PROFILER FEED

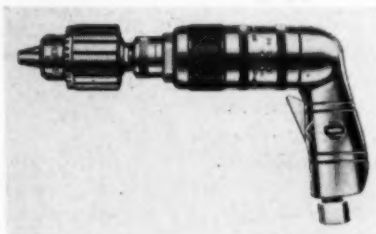


Addition of this automatic chute feed to air chuck of two-spindle profiling machine is claimed to have increased production of these machines as much as 30 per cent. Attachment is being used for feeding such items as brass and copper primer tubes for boring and tapping operations on both ends at same time.

Other uses of profilers include burring, chamfering, facing, threading, centering, reaming and boring both ends of tubes or rods simultaneously on such parts as bombs, tank tread tubes and pins. Several of these profiling operations may be combined and performed at same time. Made by **Pines Engineering Co.**, 600 Prairie St., Aurora, Ill.

▲ Mention Item NED-4562 when writing ▲

PNEUMATIC DRILL

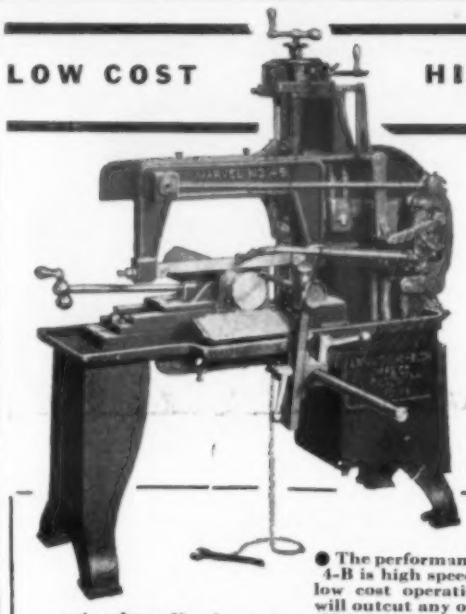


Adaptable for wide range of work by war plants, aircraft builders, shipyards and other industrial plants, this ⅜-inch capacity air drill is available in straight and right angle types. Equipped with Jacobs chuck, this rotary pneumatic tool is well balanced. Pistol grip type handle and trigger type control add to convenience of use, even in close quarters.

Tool is designed for use on standard plant air line pressures. Ample power is supplied for drilling up to full ⅜-inch holes in most materials. Made by **The Aro Equipment Corp.**, Bryan, O.

▲ Mention Item NED-4563 when writing ▲

LOW COST HIGH SPEED



MARVEL

- MARVEL 4-B shaper action high speed Hack Saw.
- Screw-feed. Ball-bearing saw frame. Quick action vise.
- Cuts 6" cold-rolled bar in 8 minutes — other sizes in proportionate time.

MARVEL

● The performance of MARVEL 4-B is high speed cutting with low cost operation because it will outcut any other saw in its price class. Has draw-cut and lift return giving blade longer life. Has accurate, rigid frame action. 6"x6" capacity and a speed of 149 strokes per minute. MARVEL 4-B may be had with cabinet base and with 4 speeds.

BUY FROM YOUR LOCAL DISTRIBUTORS

Write for Bulletin about these low cost machines featuring speed and efficiency

ARMSTRONG-BLUM MFG. CO.
"The Hack Saw People"
5700 Bloomingdale Ave. Chicago, U. S. A.
Eastern Sales Office: 225 Lafayette Street, New York

▲ Mention Item NED-4564 when writing ▲

DIAMONDS for Victory

BIG-HED-NIBS
LOC-KEY-SET

● Three grades of diamonds. Common Quality $12 per karat. Medium quality $24 per karat. Select quality $48 per karat. (Contour template diamonds supplied only in Medium and Select quality.)

All diamond sizes ¼ to 10 karat are nib mounted for immediate shipment . . . Billed subject to approval. Specify quality of diamond wanted. We recommend a minimum size of one karat for each 6" diameter of grinding wheel. (24 hour resetting service, $1.00 post paid.) Grinders instruction card free.

RE-SET-ABLE

Cooler dressing
Closer Tolerances
Micrometer Accuracy
Because: Wing key heat dissipation and absolute diamond lock nib.

Send specifications and prints for prices on turning and boring form tools.

DIAMOND TOOL COMPANY, Not Inc.
Sheldon M. Booth, Pres.
940 E 41st Street CHICAGO, ILL.

▲ Mention Item NED-4565 when writing ▲

IF Closer TOLERANCE Is Needed--
You Can Get It

AVAILABLE SIZES

8" x 12"	18" x 24"
9" x 14"	24" x 24"
12" x 18"	24" x 36"
18" x 18"	30" x 60"

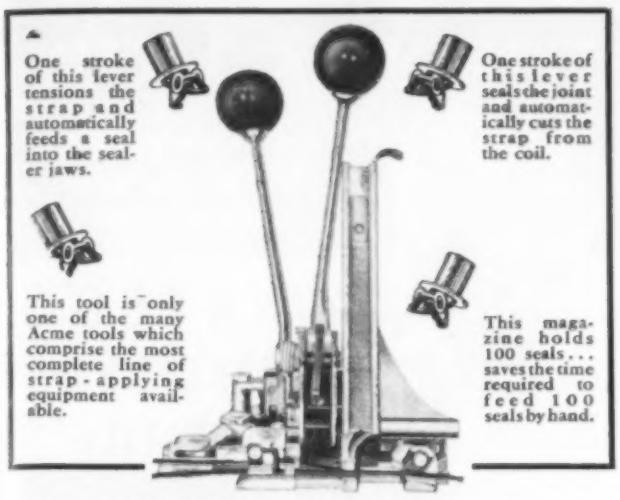
Many other sizes within this range

SMITH MASTER SURFACE PLATES

are processed to high standards of tolerance; but if you need closer tolerance, you can get it. Exclusive in design. These Surface Plates give you ample rigidity and stiffness with maximum freedom from distortion and minimum deflection. Each plate is a Master Plate which meets your every specification. Write for descriptive literature today.

SMITH TOOL WORKS, INC. - BUCYRUS, OHIO

▲ Mention Item NED-4566 when writing ▲



FOR FASTER STRAPPING . . .
USE *Acme Steelstrappers*

The fastest strapping tool ever devised! That's the Acme Steelstrapper! One-piece . . . magazine seal-fed . . . it tensions, seals and cuts the strap with a single stroke of two levers. Easily handled . . . Acme Steelstrappers assure exceptionally low strapping costs. Write, phone or wire the nearest Acme Office.

ACME STEEL COMPANY
2822 ARCHER AVENUE, CHICAGO, ILLINOIS
Branches and Sales Offices in Principal Cities
Look for Acme Steel on the Seal

▲ Mention Item **NED-4567** when writing ▲

V . . . *excerpt from a letter marked* **"PERSONAL"**

I've marked this letter "Personal," not as a trick to attract your attention, but because it must take the place of a personal call that I've tried to find time to make—without success.

We are busy at Foster. In a few all-too-short months, we have changed our entire organization from a private enterprise to a tireless war machine. We, too, have gone all out—not merely for defense, but for *victory*.

We realize that this change has effected our "normal" business relations with many of our customers. But these are not "normal" times . . . we *must* avoid too little, too late — war work *must* come first here just as it does in your plant.

We have not forgotten our old customers. We can still make valves for you—but if we seem slow in answering your inquiry; if our delivery dates seem unreasonable, be assured that it is not indifference, not a lack of appreciation of past favors.

It's simply that we're "in" on this business of winning the war—and when the war is won, we will be back "on schedule."

FOSTER ENGINEERING *Company*
109 MONROE STREET, NEWARK, N. J.

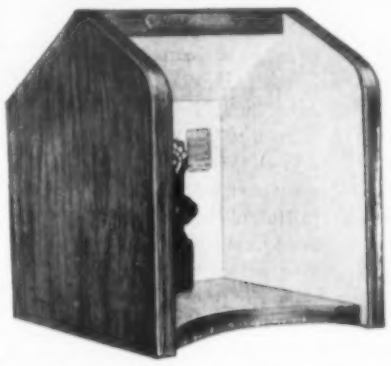
PRESSURE REGULATORS . . . RELIEF AND BACK PRESSURE VALVES . . . AUTOMATIC STOP AND CHECK VALVES . . . ALTITUDE VALVES . . . DAMPER REGULATORS . . . FAN ENGINE REGULATORS . . . PUMP GOVERNORS . . . TEMPERATURE REGULATORS . . . LIQUID LEVEL CONTROLLERS . . . FLOAT AND LEVER BALANCED VALVES . . . NON-RETURN AND TRIPLE DUTY VALVES . . . VACUUM REGULATORS OR BREAKERS . . . SIGHT FLOW BOXES . . . STRAINERS . . . SAFETY VALVES . . . SIRENS

9-FE-9

▲ Mention Item **NED-4568** when writing ▲

QUIET TELEPHONE BOOTH

Constructed entirely of wood, this Scout model 601 Acousti-Booth is designed especially for use where noise conditions are mild or where space is limited. Being half of size of standard unit, this model assures users quiet and privacy when telephoning, plus convenience common to shelf or wall type booths.



Applications include use in crowded areas, small shop offices and other locations where limited space prevents installation of full size booth. Walls are lined with thick, sound absorbent blanket, protected by plywood facing. These walls absorb noise, assuring user undisturbed privacy of speech.

Booth is rigidly constructed of heavy birch plywood throughout and is finished in brown walnut color. It can be supplied unfinished to permit finishing to meet customer's requirements. Shelf at bottom provides room for directory and for taking notes. Outside dimensions are 28 inches wide, 32 inches high and 26 inches deep. Made by **Burgess Battery Co.**, Acoustic Div., 2815 W. Roscoe St., Chicago, Ill.

▲ Mention Item **NED-4569** when writing ▲

DISCONNECT SWITCH

Assembled for inverted mounting with application for vertical mounting if desired, this type FB-2P 3000-ampere, 7.5-kilovolt outdoor disconnect switch is mounted on 5-inch bolt circle, heavy duty, brown glaze NEMA standard insulators.

Combination hook stick ring, positive safety lock and pressure releasing device is mounted at contact end of blade to insure easy opening.

Straight line current path and elimination of castings for current carrying parts are desirable features. It is made in all ratings from 2000 amperes and up. Voltages are up to 34.5 kilovolts. Made by **Delta-Star Electric Co.**, 2402 Fulton Street, Chicago, Ill.

▲ Mention Item **NED-4570** when writing ▲

TOOL AND CUTTER GRINDER

Handling all types of tools, cutters, cylindrical work and internal jobs, this Vernon universal tool and cutter grinder features smooth and sensitive action. Centers swing 10½ inches over table. Maximum travel is 17¼ inches. Maximum work length between right and left hand tail stocks is 16 inches. Maximum distance between centerline of work and centerline of grinding wheel spindle is 10 inches. Transverse travel of column is 7½ inches. Vertical movement of wheel spindle is 6 inches.

Spindle head is powered by ½ horsepower, 3-phase, ball bearing motor. Three speeds are provided for external spindle and two speeds for internal spindle. Auxiliary drive permits substitution of internal spindle for external unit when internal grinding work is performed. Grinding speeds are varied by changing motor pulleys only. Head swivels full 360 degrees in horizontal plane.

Elevation of spindle head on column is secured by large handwheel with dial graduated in divisions of 0.001 inch. Column is protected against abrasives and splash by accordian Neoprene boot. Longitudinal table movement is secured through V-belt drive. Transverse movement of column is obtained with large handwheel graduated to 0.001 inch.

Table swivels 45 degrees in either direction, being locked in place by three bolts which engage in T-slots in sub-table. Coolant is supplied from sump by motor drive pump. Complete accessories are available. Made by **Machinery Mfg. Co.**, 1917 E. Fifty-first St., Los Angeles, Calif.

▲ Mention Item **NED-4571** when writing ▲

★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★

For Victory...
BUY U. S. WAR BONDS
and
BUY QUALITY MATERIALS

The use of quality materials is a good guarantee against unnecessary interruptions of top-speed production. That is why Garlock packings and gaskets are in use in so many factories today.

From past experience industry knows it can rely on Garlock quality for the long, dependable service so vital in today's war effort.

THE GARLOCK PACKING CO.
PALMYRA, NEW YORK
In Canada: The Garlock Packing Company of Canada Limited, Montreal, Que.

GARLOCK

▲ Mention Item **NED-4572** when writing ▲

If you've seen SKILDRILL or heard about the thousands of SKILDRILLS in war plants, you know it's perfect for easy, top-speed, day-long drilling. And now you should know that SKILDRILL has been improved . . . with new special features that put it even farther ahead of every other ¼-in. drill in the market!

We improved the gearing . . . made SKILDRILL run quieter than ever without adding an ounce to its easy-handling 2¾ lbs.!

We stepped up the cooling system . . . made this *cool* drill run COOLER without making it bigger (only 2⅞ in. wide and 6⅝ in. long). And we offer SKILDRILL in 4 SPEEDS to give you peak performance on whatever material you use . . . to speed up every production drilling job in your plant. Ask your distributor to demonstrate new, *improved* SKILDRILL today!

SKILSAW, INC., 5027 Elston Ave., Chicago
New York • Boston • Buffalo • Philadelphia • Cleveland • Detroit
Indianapolis • St. Louis • Kansas City • Atlanta • New Orleans
Dallas • Los Angeles • Oakland • Seattle • Toronto, Canada

SKILSAW PORTABLE ELECTRIC TOOLS
★ *MAKE AMERICA'S HANDS MORE PRODUCTIVE* ★

▲ Mention Item **NED-4573** when writing ▲

fly . . . fight to Victory with RELAYS

★ Turret control is one job that calls for flawless perfection. Electrical Controls by Guardian bring quick response from turret motors and gear series at every turn.

Again . . . it's Relays for aiming, fusing, releasing bombs . . . Relays for navigation, floodlights, landing gears. Yes, air, land and sea battles are first thought-out and fought-out in Guardian's plants where samples of approved controls await your action. Write

- GUN SWITCH HANDLES
- REMOTE FIRING EQUIPMENT
- TURRET CONTROLS
- RADIO CONTROLS
- NAVIGATION CONTROLS
- AIRCRAFT CONTROLS
- BOMB RELEASES
- SOLENOID CONTACTORS*

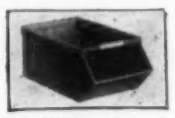
*A and B Series Army Air Corps Approved.

GUARDIAN ELECTRIC
1626 WEST WALNUT STREET CHICAGO, ILLINOIS
LARGEST LINE OF RELAYS SERVING AMERICAN WAR INDUSTRY

▲ Mention Item NED-4577 when writing ▲

A Storage Unit that
REDUCES HANDLING
of Parts and Materials

Because Stackbins are portable containers—not fixtures—parts and materials can be carried to departments, from machine to machine, or held in stockrooms without being transferred from one container to another. Stored in Stackracks, any Stackbin is instantly accessible when its contents are needed—without disturbing any other bin.



STACKBINS are individual hopper-fronted stacking bins, designed for storage, transportation and assembly.

STACKRACKS are individual units which lock together to form storage racks of any size, shape or capacity, into which Stackbins slide like drawers.

STACKBINS in STACKRACKS offer a storage system that reduces handling, saves valuable space, and speeds work. Write us for complete details and low prices.

STACKBIN CORPORATION
71 Troy Street Providence, R. I.
"Stacked and Still Accessible"

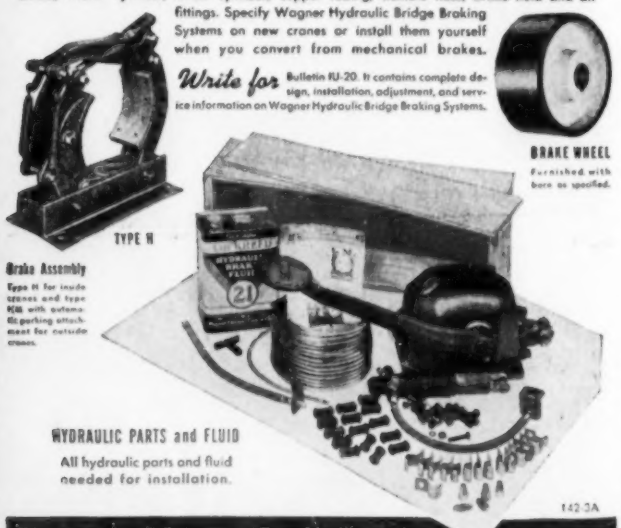
▲ Mention Item NED-4578 when writing ▲

★WAGNER★
COMPLETE HYDRAULIC
BRIDGE BRAKING SYSTEMS

The Quick and Economical Solution to Your Crane Braking Problem—

They come to you ready to install and include everything necessary—brake assembly, brake wheel, master cylinder, wheel cylinder, copper tubing, flexible hose, brake fluid and all fittings. Specify Wagner Hydraulic Bridge Braking Systems on new cranes or install them yourself when you convert from mechanical brakes.

Write for Bulletin KJ-20. It contains complete design, installation, adjustment, and service information on Wagner Hydraulic Bridge Braking Systems.

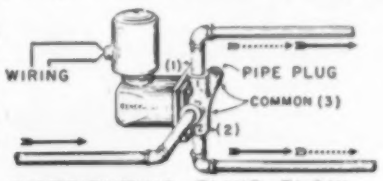


Wagner Electric Corporation
6477 Plymouth Avenue, Saint Louis, Mo., U.S.A.
BRAKES • TRANSFORMERS • FANS • MOTORS

▲ Mention Item NED-4579 when writing ▲

THREE-WAY MAGNETIC VALVE

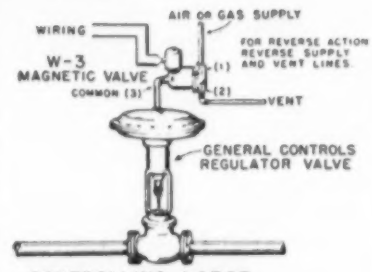
Capable of handling oil, water, air, gas, steam, refrigerants and similar fluids and vapors not corrosive to valve material, this series W-3 three-way magnetic valve includes both larger iron pipe sizes and port sizes. Fluids up to 400 degrees Fahr. can be handled. Inside pipe sizes range up to 1 inch and port sizes up to 15/32 inch.



DISTRIBUTING FLUID FLOW

Valves are used widely for control of fluids to pistons and diaphragm operators on valve, doors and gates, as well as for applications where fluids must be distributed from common source, for pneumatic pumping or for selection of fluid sources. Being of single magnetic type, device cannot assume intermediate position.

APPLICATIONS:

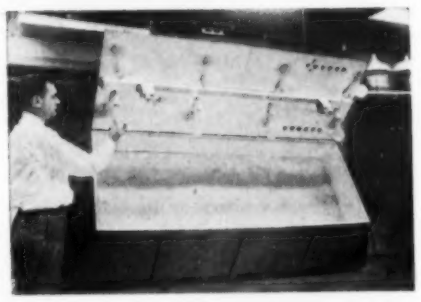


CONTROLLING LARGE DIAPHRAGM REGULATING VALVE

Simple connection changes permit reverse action. Higher pressures can be accommodated without affecting operation, as long as pressure differentials are held within prescribed limits. Valves are available for commercial alternating or direct currents. Made by **General Controls Co.**, 700 W. Ivy St., Glendale, Calif.

▲ Mention Item NED-4580 when writing ▲

MERCURY LUMINAIRE



Providing a quality of light which eliminates reflected glare from such shiny surfaces as polished sheet aluminum and other materials used in construction of war goods, this Jumbo Luminaire consumes 4600 watts and produces nearly 150,000 lumens of light. Unit employs both 3000-watt mercury tubular lamp and battery of eight 200-watt inside-frosted filament lamps. It is said to be world's largest and most powerful industrial lighting fixture.

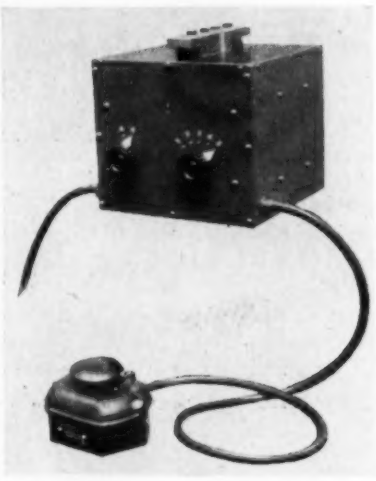
Instead of usual metal construction, fixture is made of special fibre board and has bottom consisting of ordinary tracing paper so sealed as to keep out dust and dirt. It measures approximately 8 feet in length, 4 feet in width and 2 feet in depth.

Combination of mercury and filament lamps gives as much light as that from system of seven or eight 1000-watt filament lamps. By using 3000-watt, 55-inch long mercury tubular lamp alone, replacement should not be necessary more than twice each year.

Fixtures are capable of doing work of seven or eight conventional industrial lighting units. These lights may be placed 40 feet or more above floor level. Price of fixture with lamps is $45. Made by **General Electric Co.**, Dept. CM, Nela Park, Cleveland, O.

▲ Mention Item NED-4581 when writing ▲

HEATING TRANSFORMER



Built for heating condenser assemblies, whether for three leaves on shaft, or eight or nine, these 10-inch cube transformers have 10 heat-speeds and foot-treadle for applying and cutting off current. Leads are not shown, for when assembly is ready to be heated, it is in jig.

It is suggested that wooden table be built with transformer beneath it. Attach two lengths of 1-inch diameter flexible leads from posts that are provided, to copper blocks. Blocks will project above wooden table, and can be separated by use of tapered wooden blocks. Bind flexible shaft at whatever distance apart necessary so that copper shafts to which leaves are to be soldered would rest on top of copper blocks.

Then to hold copper shafts firmly, fasten double-throw knife blade to wooden table and stand it vertically until jig and parts are on contact blocks. In 1½ to 2 seconds all leaves that are on shaft will be soldered. Developed by **American Car & Foundry Co.**, 36 Church St., New York City.

▲ Mention Item NED-4582 when writing ▲

THIS NEW BULLETIN

tells you how the NEWER and MORE ECONOMICAL types of

NATCO STRUCTURAL CLAY TILE

when used for fireproof, load-bearing, insulated, sound-resisting, quickly-erected, enduring walls, floors and roofs of industrial and commercial buildings, release large tonnages of steel and other critical materials for the war effort.

This new, helpful Natco Construction Bulletin should certainly be on your desk. Write for your copy. IT'S FREE.

NATIONAL FIREPROOFING CORP.
214 E. OHIO ST., N. S. PITTSBURGH, PA.

▲ Mention Item NED-4583 when writing ▲

This FREE book shows how to

GET MORE "MILEAGE" OUT OF YOUR FUSES

Partial List of Contents

- What to do when fuses blow
- Where to look for trouble that caused fuses to blow
- What to do after you have found the trouble
- How to select right type fuses for various circuits
- How to determine proper size fuse or Fusetron to use for different applications
- How you can save material and cut costs on motor installations
- How to recognize a reliable make of fuses

and

- a lot of other useful information that will help you get more service out of your fuses.

SAVE FUSES
Send for a Copy of this Book

BUSSMANN MFG. CO. *Division McGraw Electric Company*
University at Jefferson, St. Louis
Please send me a free copy of FUSEOLOGY.

Name ..... Title .....
PLEASE PRINT
Company .....
Address .....
City & State .....

BUSS Super-Lag FUSES
Available through Electrical Wholesalers

▲ Mention Item NED-4584 when writing ▲

TRY AND WEAR IT OUT!

HERE is a switch that can be operated literally millions of times without any decrease in efficiency—the mercury-to-metal hard-glass Kon-nec-tor.

G-E Kon-nec-tors have a multitude of vital industrial uses. They act quickly, are safe and dependable, and operate without flashing and sparking. And they are inexpensive. Use G-E Kon-nec-tors . . . the small, silent, simple, modern switching device!

FOR INFORMATION ABOUT APPLICATIONS OF G-E KON-NEC-TORS SEND FOR YOUR COPIES OF THESE TWO FOLDERS *Write the address below*

NELA SPECIALTY DIVISION, LAMP DEPT.

GENERAL ELECTRIC

410 Eighth Street, Hoboken, N. J.

▲ Mention Item NED-4585 when writing ▲

Send NOW for Folder on

CRESCENT BOX STRAPPING

- Here is a NEW source of supply capable of making quick delivery in large quantity to industries engaged in defense work.
- This Strapping is made to Federal Specifications for Army and Navy requirements, as well as commercial use.

Also
ELECTRO-GALVANIZED STEEL STRIP
in widths from 1/4" to 2" and .010" to .070" thick

CRESCENT INSULATED WIRE & CABLE CO.
TRENTON, N. J.

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Now! *A Complete Manual on* MARKING DEVICES *For Every Industrial Use*

Request A Copy On Your Letterhead!

Plant Managers! Superintendents! Purchasing Agents! Production and Plant Engineers! Here's a book that will give you the answers to your marking problems. It contains hundreds of illustrations, with concise descriptions of Marking Devices for every Industrial Marking application. Yours for the asking . . . request a copy on your letterhead today!

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New York—Chicago—Phila.—Boston—Detroit—Newark—Syracuse
DISTRICT SALES OFFICES • CLEVELAND • HARTFORD • BIRMINGHAM

▲ Mention Item NED-4587 when writing ▲

ELECTRIC FEEDER DUCT

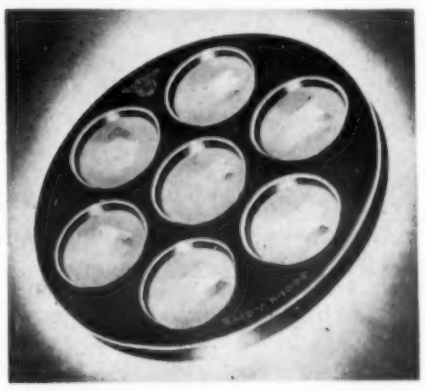
Having advantages of low resistance, this Saflex feeder duct is designed primarily to serve as feeder between transformer banks and main switchboards, or as feeders to branch circuits where minimum voltage loss is essential. It is suitable for welder circuits, also, as it provides compact conductor with voltage drop of only 1.8 volts per hundred feet and conductor size may be kept at minimum.

Duct is enclosed principally in non-metallic insulation. Absence of steel eliminates iron losses and hum, as well as pulsations sometimes experienced from impact of heavy welder loads in other types of feeders. Current losses and rejects have also been reduced.

Balanced phases are provided at all points through split-bus arrangement which furnishes electrical symmetry on phases. Uniform low voltage drop results from close spacing of busses, separated by 1/4-inch of insulation. In full load tests, temperature rise is 38 degrees Cent. Capacities range from 500 to 6000 amperes, 600 volts or less for single phase, 2 and 3 phase and 3 phase, 4 wire services. Made by **Square D Co.**, Switch & Panel Div., 6060 Rivard St., Detroit, Mich.

▲ Mention Item **NED-4588** when writing ▲

PHOTO-ELECTRIC CELLS



With an output in excess of 450 microamperes per lumen, these photo-electric cells are of self-generating type. Units are manufactured in eight standard sizes with current outputs ranging up to 4000 microamperes at 100 foot candles. Cells are permanently stable and can withstand temperatures up to 70 degrees centigrade.

Cells are said to be able to be used under most difficult atmospheric conditions. Spectral response of these cells extend from 240 millimicrons in ultra violet into 720 millimicrons in infra-red. This makes them especially suitable for all determinations requiring selective ability of human eye.

Standard cells are made in three different sensitivity ranges in accordance with requirements in various fields of applications. Made by **Emby Products Co.**, 1804 W. Pico Blvd., Los Angeles, Calif.

▲ Mention Item **NED-4589** when writing ▲

CLASSIFICATION RECORD

To aid manufacturers in determining monthly pattern of End-Use Classification required under Priority regulation No. 10, this No. 2468 analysis record book has been devised. All purchase orders can be entered and monthly pattern can be quickly determined by average clerk.

Book is self-indexed by classifications according to army, navy, lend-lease, foreign purchasers and domestic purchasers. Seventeen ruled columns have allocation symbol headings. List price is 75 cents. Distributed by **Horder's, Inc.**, 231 S. Jefferson St., Chicago, Ill.

▲ Mention Item **NED-4590** when writing ▲

PARTS CHILLING UNIT

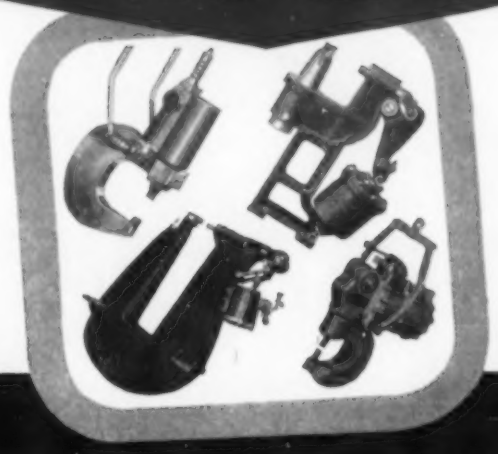
Extending tolerance without sacrificing precision, this parts chilling process permits machining to be accomplished in shorter time. Seasoning time for castings is reduced also through low temperature treatment and they can be machined soon after they come from mold. Illustration shows unit chilling bronze bushings to 30 degrees below zero Fahr. preparatory to assembly in machine.

Tank, built with insulated walls, has refrigerator door type cover. Refrigerating machine is located adjacent to tank and supplies cooling effect to maintain liquid in tank at required sub-zero temperature. This liquid is 50 per cent solution of anti-freeze in water which will not freeze at this temperature. Unit made by **Carrier Corp.**, 302 S. Geddes St., Syracuse, N. Y.

▲ Mention Item **NED-4591** when writing ▲

Hanna RIVETERS

Pneumatic • Hydraulic • Portable • Stationary



• The Hanna line of riveters includes over 700 styles and sizes. Capacity ranges from 1/8" diameter up to 2 1/2" diameter rivets. Reach or throat sizes from 2" to 22'. What is your riveting problem?
Write us for a solution.

HANNA ENGINEERING WORKS
1765 ELSTON AVE. • CHICAGO, ILL.

▲ Mention Item NED-4592 when writing ▲

Inexpensive Cranes
SAVE VALUABLE TIME

Skilled mechanics spend less time handling materials and more time with actual production when they are provided with an easy rolling Cleveland Tramrail crane.

The crane illustrated is hand-propelled with an electric hoist for the heavy lifting.

Regardless of the priority you can furnish, write for booklet 2008 for data and ideas on materials handling.

CLEVELAND TRAMRAIL DIVISION
THE CLEVELAND CRANE & ENGINEERING CO.
1143 East 283rd St. Wickliffe, Ohio

▲ Mention Item NED-4593 when writing ▲

BEFORE YOU BUY ANY COMBUSTION TEST SET

Read This FREE BOOK!

Learn what is meant by combustion testing—the importance of CO_2, draft and flue gas temperature. Learn how to run an orsat, how to cure chimney troubles—how to check an installation. This book tells all and is sent without cost or obligation. Send name and address—
980 Eighth Ave.

CLIP AD and MAIL to

THE HAYS CORPORATION
SINCE 1901 COMBUSTION INSTRUMENTS AND CONTROL
MICHIGAN CITY, INDIANA, U.S.A.

▲ Mention Item NED-4594 when writing ▲

Cupforged

Typical of Aero Tool's superiority of manufacture and design is the exclusive CUPFORGING* process incorporated in this Standard Straight Rivet Set... even grain structure and metal flow, long life and extreme resilience are achieved.

In addition to CUPFORGING, Aero Tool Engineers have developed Microglass Finishing that prevents marring the surfaces the tools contact... and Comparameter Inspection which assures surface perfection and dimensional accuracy.

Of equal excellence, are the many tools described in the file-size forty-two page catalog just off the press... write for your copy today (on your firm letterhead please).

For better tools, for CUPFORGED tools, write Aero Tool.

*The term Cupforged is a registered Aero Tool trademark.

AERO TOOL COMPANY
CUPFORGED AVIATION TOOLS
Aero Tool Co., 233 West Olive, Burbank, Calif.

▲ Mention Item NED-4595 when writing ▲

CHAYES DENTAL INSTRUMENT CORP.
INDUSTRIAL DIVISION
460 WEST 34th ST. NEW YORK CITY

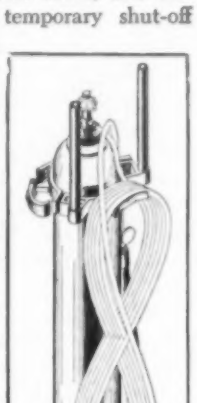
▲ Mention Item NED-4596 when writing ▲

MERCER ENGINEERING WORKS, INC.
Works: CLIFTON (ALLWOOD), N. J.
Sales Office: 30 CHURCH STREET, NEW YORK
Export Office: 80 Broad St., New York

▲ Mention Item NED-4597 when writing ▲

FIRE EXTINGUISHER

Consisting of 50-pound cylinder, 50-foot length of flexible rubber hose carried on upper and lower hose racks, and discharge horn provided with quick-acting temporary shut-off valve, this portable Alfite extinguishing unit may be attached to wall of cab of diesel engine by means of specially designed brackets.

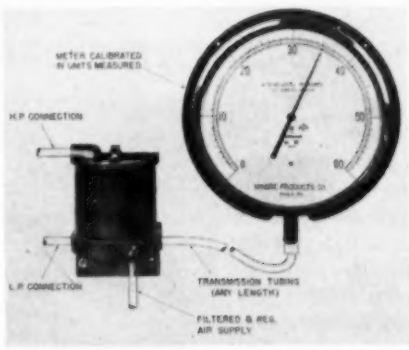


Wall brackets are of quick-detachable type allowing instant removal for extinguishing fires outside of, or beneath locomotive. Gas will not freeze at any climatic temperature. It does not deteriorate. Simple periodic weighing will check contents of cylinder. Gas is non-conductor and may be used with safety on live electrical equipment.

Fire fighting unit has been designed to occupy minimum of room within confined space of locomotive cab. It is 58 inches high by 18 inches wide, and projects from wall only 12 inches. Made by **American-LaFrance-Foamite Corp.**, 700 Erie St., Elmira, N. Y.

▲ Mention Item NED-4598 when writing ▲

PRESSURE TRANSMITTER



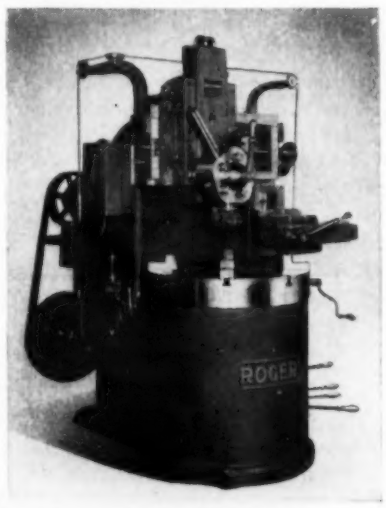
Developed to provide simple and dependable method to accurately measure and amplify small differential pressures, this pneumatic differential transmitter pneumatically transmits this amplified value to receiving meter in terms of units measured. Characteristic of method is true linear function and constant ratio of amplification.

Ratio may be varied to suit requirements, but in all cases it depends upon fixed ratio of bellows areas. System of pneumatic balance assures sensitivity. Meter finds applications involving liquid level, flow in pipes, interface level, ratio flow control, specific gravity, temperature compensation, temperature transmission and pressure transmission.

Sealed-in differential unit is made of phosphor bronze or stainless steel in accordance with requirements of installation. Separate pilot is provided where long distances of transmission are encountered. Made by **Moore Products Co.**, H & Lycoming Sts., Philadelphia, Pa.

▲ Mention Item NED-4599 when writing ▲

VERTICAL TURRET MILL



Designed for boring, drilling and turning ferrous and nonferrous castings, forgings and similar pieces, this Perfect 36 vertical turret mill is equipped to handle two operations at same time. Specially built swivel head and main head, by incorporating swivel design in side head, are able to handle operations.

For irregular pieces, side head may be set to any angle up to 35 degrees either way. Built-in graduated dial saves time in making set-ups for original and second runs. Large bearing area of tool stake and side rail, with positive clamping, assure rigidity and close tolerance work.

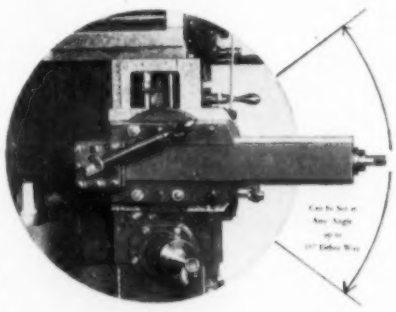


Table level horizontal chuck allows work to slide easily and quickly into exact position which eliminates usual balancing of work while clamping to chuck. In addition to swivel side head and horizontal chuck table, unit has motor driven rapid traverse, heavy duty main clutch that runs in oiltight case, foot controls and strong rigid frame.

Capacity is 36-inch diameter. Table face to turret face is 24 inches maximum and 0 minimum. Main head and side head have eight vertical and horizontal feeds each. Spindle speeds can be set to any one of eight speeds. Screw-cutting attachment is available. Made by **Rogers Machine Works, Inc.**, 125 Arthur St., Buffalo, N. Y.

▲ Mention Item NED-4600 when writing ▲

7 TIMES MORE PR

from your Prese

Engine and turret lathes, shapers, vertical or horizontal mills, will give you an average of 7 times more production on contour machining with a DUPLIMATIC. This self-contained control mechanism is easily connected to the feed screws and enables the tool to duplicate an original template or model directly in metal—automatically, accurately and at high speeds. Used extensively in the largest mass production

Do it with a **DUPLIMATIC**

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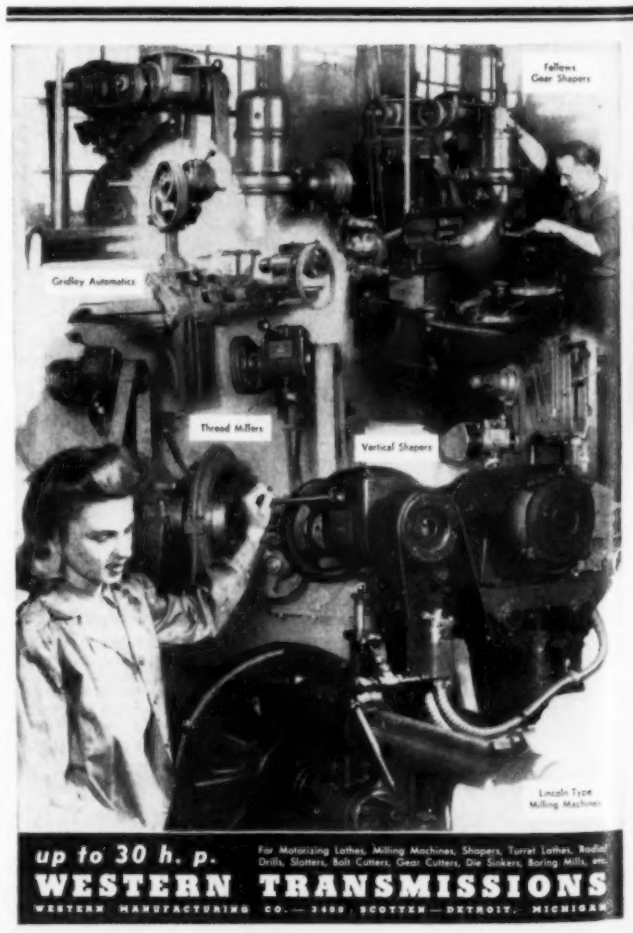
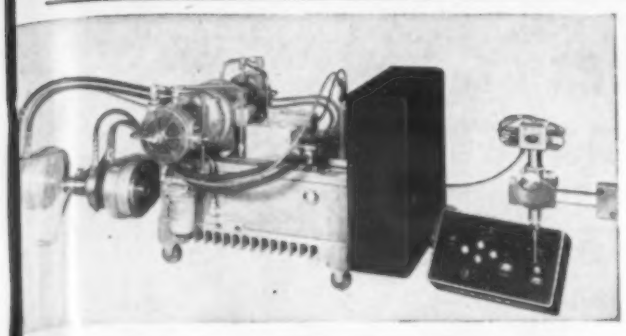


up to 30 h. p. For Motorizing Lathes, Milling Machines, Shapers, Turret Lathes, Radial Drills, Slotters, Bolt Cutters, Gear Cutters, Die Sinkers, Boring Mills, etc.

WESTERN TRANSMISSIONS
WESTERN MANUFACTURING CO. — 3400 SCOTTEN — DETROIT, MICHIGAN

▲ Mention Item NED-4603 when writing ▲



DUCTION
Machine Tools

ants on ordnance work which requires close curacies. Your present machine tools do not ve to be moved or rebuilt. Additional floor ace is *not* required. Newly trained help n easily handle the DUPLIMATIC.

Send for complete information now. Please ention the type of work and, if possible, clude sketch, print or sample for prompt otation.

accurate control.

DETROIT UNIVERSAL DUPLICATOR CO.
221 St. Aubin Ave. Detroit, Mich.

when writing ▲

A "SURE-FIRE" METHOD OF SPEEDING PRODUCTION

BULLETS OR BILLETS... BOMBS OR BOTTLES...

here's one sure-fire method of keeping 'em olling faster . . . at less cost per man-and-nachine-hour . . . and with less worker atigue. And that's to do it with a well lanned Conveyer System. Your Mathews ngineer is at your service, as usual.

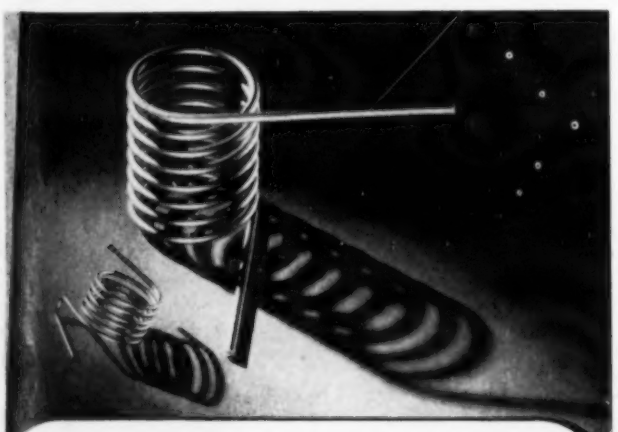
MATHEWS CONVEYER COMPANY
ELLWOOD CITY, PENNA.

Field Engineers and Sales Offices located in 30 Industrial Centers.

DOUBLED CAPACITY FOR WAR PRODUCTION

Stepping up our productive capacity month after month has barely enabled us to keep pace with mounting war orders. As long as this condition exists, it becomes increasingly difficult to meet civilian requirements. Our one big job is the handling of war material. That job must come first.

Item when writing ▲



Get the *Right Spring* for your job!

Many years' experience in designing springs of all types—compression, extension, torsion and flat—enables Muehlhausen to solve *your* spring problem quickly. Large production facilities assure excellent service on orders of any size. Write today.

New Die Spring Folder. Free On Request.

MUEHLHAUSEN SPRING CORPORATION
550 Michigan Ave., Logansport, Indiana

MUEHLHAUSEN SPRINGS
EVERY TYPE AND SIZE

▲ Mention Item **NED-4604** when writing ▲

FLUORESCENT STARTER

With no current flowing through ballast after "dead" fluorescent lamp has been locked out, this Master No Blink starter with its manual-reset also eliminates cooling period which is required for replacement of lamps using automatic starters. Unit keeps dead lamp from flickering.

When this device locks "dead" lamp out of circuit, small red button on top of starter snaps forward. When worn-out lamp is removed from fixture, red button is pushed in manually to reset starter, without removing starter from fixture. Lamps can be changed without shutting off current.

Starter is available for 30-watt, 40-watt and 100-watt fluorescent lamps only. Made by **General Electric Co.**, Bridgeport, Conn.

▲ Mention Item **NED-4605** when writing ▲

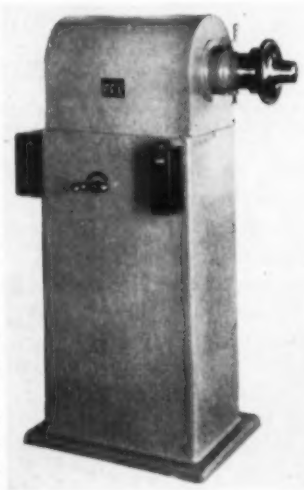
STEAM PIPE SELECTOR

Calculation of pipe sizes for given steam load is simplified through use of this rotating type Pipe Selector. Full instructions for use are imprinted on front of device. Knowing quantity of steam required, desired pressure drop, steam pressure and length of pipe line including allowance for fittings, simple settings of dial give proper pipe size to be used under these known conditions. Other useful data, applicable for solving pipe size problems, is included. List price is 35 cents. Made by **E. S. Atkinson Co.**, 1115 Sassafras St., Erie, Pa.

▲ Mention Item **NED-4606** when writing ▲

SPEED LATHE

For finishing, burring, filing, lapping or polishing, this Ideal speed lathe is designed to increase output of finished screw machined parts up to 1⅜ inches in diameter. Chuck operates spring type collet which is quickly adjusted to size of work by means of hand wheel mounted on chuck.



Unit has motor speeds as low as 20 revolutions per minute and ranging up to 4000 revolutions per minute. Speeds are in ratio of 6 to 1 for single-speed motors and 12 to 1 for two-speed motors. Spindle variation speed is obtained by movement of variable pitch pulley, controlled by conveniently located crank. Standard size pulleys are used and connection between driving and driven parts is by means of standard length V-belts. Tension adjustment for both belts compensates for wear and stretch.

Motor is spring mounted in base of pedestal and automatically controls belt tension. Motor and brake control is hand operated. Made by **Schauer Machine Co.**, 2063 Reading Rd. Cincinnati, O.

▲ Mention Item **NED-4607** when writing ▲

WALL CHART

Explaining uses of various types of self-locking nuts, this wall chart is suggested for drafting rooms, maintenance shops and schools. Center of chart is devoted to illustrated description of basic principle by which self-locking action is obtained. This is followed by illustrations of advantages to be obtained by use of nuts and also complete cross-section drawings showing method of application of nine types most generally used.

Chart measures 21 by 27 inches and is reinforced at top and bottom by metal strips. An eyelet for hanging is at top. Copies may be had free of charge. Offered by **Elastic Stop Nut Corp.**, 2350B Vauxhall Rd., Union, N. J.

▲ Mention Item **NED-4608** when writing ▲

We Pledge

To keep production wheels humming by co-operating with the demands of Uncle Sam and industry.

To give as quick a delivery as possible.

To build strong, well-made thermometers for many years of service.

To furnish guaranteed accuracy and a mercury column with a wide RED column for quick reading.

To help you in selecting the right thermometer for your needs.

To do our very best for everyone that we can.

So that we can all enjoy an Early Victory. We ask your co-operation and we pledge ours.

Remember PALMER Thermometers on your next order.

(*Catalog No. 300-D sent promptly*)

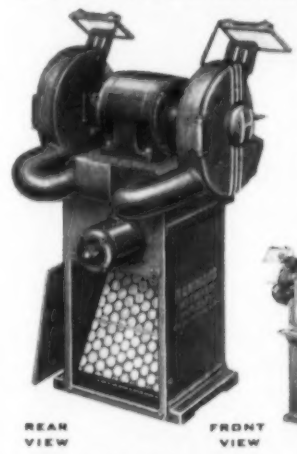
red reading mercury

THE PALMER CO.
MFRS.: INDUSTRIAL, LABORATORY, RECORDING & DIAL THERMOMETERS
2523 NORWOOD AVE., CINCINNATI, NORWOOD, O.
CANADIAN BRANCH: KING AND GEORGE STS., TORONTO

▲ Mention Item **NED-4609** when writing ▲

Hammond NO-DUST GRINDERS*
Added 50% Valuable Floor Space to Our Department

*Completely Self-Contained Grinder with Dust Collector in-the-Base



3 POPULAR SIZES
for 10", 12", 14" Wheels

Hammond NO-DUST Grinder. Units require only 6½ sq. ft. of space. Average grinder with independent dust collector requires almost 15 sq. ft. No further need to figure out independent connections to permanent dust collector system. Set it up anywhere near electrical outlets and put it to work.

REAR VIEW FRONT VIEW

WRITE FOR BULLETIN GP-13

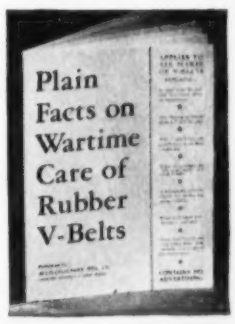
Other Hammond Products: Carbide, Tool, Snagging Grinders; Abrasive Belt Surfacers; Cylindrical Finishing Machines; Polishing Lathes, Rotary Automatics

Hammond Machinery Builders INC.
1623 DOUGLAS AVENUE • KALAMAZOO • MICHIGAN
EASTERN BRANCH: 71 WEST 23RD STREET, NEW YORK CITY

▲ Mention Item **NED-4610** when writing ▲

ANNOUNCING . . . PLAIN FACTS ON
Wartime Care of Rubber V-belts!

FREE! To every engineer, executive and maintenance man . . . to help him make his Rubber V-belts work better, last longer!



Every engineer concerned with vital wartime performance of V-belts wants to know . . . How the anatomy of a V-belt affects its maintenance . . . How to maintain proper V-belt tension . . . What to do about worn sheaves . . . What determines the "life expectancy" of V-belts.

This new Rubber V-belt handbook explains these and many other maintenance facts about V-belts. Find out how to protect yours, get the most from them! Send to Allis-Chalmers for this valuable new handbook today!

ALLIS-CHALMERS
MILWAUKEE·WISCONSIN

▲ Mention Item **NED-4611** when writing ▲

FOR WAR PRODUCTS
USE AUTOMATIC RIVETING
WITH TUBULAR & SPLIT RIVETS

IF your problem is fastening metal to metal, fabric to fabric, wood to wood, or any combination, you can do the job better, quicker, and at lower cost with Chicago Single or Multiple Rivet Setters.

SEND SAMPLE ASSEMBLY OR BLUE PRINT

Chicago manufacturers complete line of industrial automatic Single and Multiple Rivet Setters for tubular and split rivets. Also aircraft riveters for setting solid aircraft rivets.

Chicago RIVET & MACHINE CO.
9606 WEST JACKSON BOULEVARD
BELLWOOD, ILLINOIS

▲ Mention Item NED-4615 when writing ▲

HELLER NUCUT U.S.A.

MORE CUTS WITH NUCUTS

Speed repairs, OVERHAULS
WITH "WAVY TEETH" FILING

Now, that you have a lot of overhauling, rebuilding and repairing to do in order to make your present equipment last longer, make every second count. Use NUCUTS, and shorten your filing time.

Because of its exclusive "Wavy Teeth" design, a NUCUT is faster-cutting. With its coarse teeth and fine teeth in patented wavy rows, it cuts clean, and also levels the surface off smooth. Both at the same stroke!

Obtainable in practically all lengths, shapes and cuts—for iron, steel, aluminum, brass, bronze, copper, slate and wood. See your nearest distributor.

HELLER BROTHERS COMPANY, *America's Oldest File Manufacturers*, Newark, N. J., Newcomerstown, Ohio

HELLER NUCUT WAVY TEETH FILES
PAT. NO. 2027039

▲ Mention Item NED-4616 when writing ▲

HANSEN

—the Tacker with a BACKGROUND of CONTINUAL PERFORMANCE

SELF-contained, portable—driving tacks, tack-points or staple-tacks fast as you grip—HANSEN TACKERS are useful wherever tacking, fastening or assembling is done. Assembly of small parts—holding corners or other units together—tacking shipping tags or lining cases—are among the uses of Hansen one-hand Tackers.

Hansen Tackers are extensively used in war production—in airplane construction, Ordnance and Navy Departments, Machine Tool Industry, etc. In defense work, where time and speed are vital—where materials and effort must be conserved—Hansen one-hand Tackers are doing their part in speeding up the win-the-war program. ASK FOR FOLDER.

1933 1934 1935 1936 1937 1938 1939 1940 1941 1942

HANSEN TACKERS STAPLES
A. L. HANSEN MFG. CO.
5164 RAVENSWOOD AVE.
CHICAGO, ILL.

▲ Mention Item NED-4617 when writing ▲

LIGHTING EQUIPMENT

Lighting of high and medium factory spaces, airplane hangars and storage rooms is accomplished with this Sterling No. 5526 unit which consists of silvered glass reflector with Light-Flo stipple in metal housing and adjustable porcelain socket.

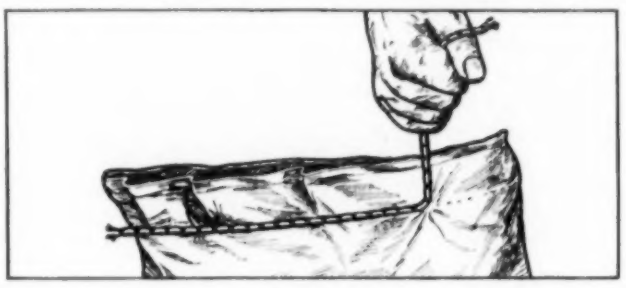
Socket may be adjusted for efficient use with 750, 1000 and 1500 watt PS lamps, as well as for 400 watt mercury vapor lamps.

Added feature is housing design which provides air passage between housing and reflector. This permits circulation both inside and outside reflector. In this way temperature is kept at minimum. Made by **Sterling Reflector Co.**, 1429 W. Hubbard St., Chicago, Ill.

▲ Mention Item NED-4618 when writing ▲

BURLAP BAGS

Providing simple quick means of opening, these Rip-Cord burlap bags are not torn or damaged in opening and valuable time is saved. Rip cord is sewn into closure of bag with regular



two thread bag closing machine. Only minor inexpensive adjustments are necessary to adapt machine.

When bag user has been closing his bags with wire ties, this newer unit will permit him to use bags two inches smaller, thus providing an economy. Rip cord method of closing and opening of bags eliminates injuries to bag and insures longer life. Made by **Bemis Brothers Bag Co.**, 601 S. Fourth St., St. Louis, Mo.

▲ Mention Item NED-4619 when writing ▲

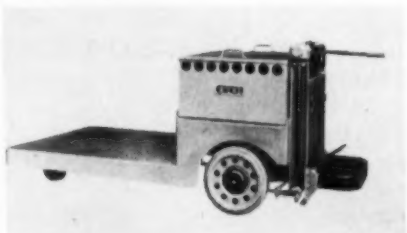
PORTABLE WATER PURIFIER

Using no chlorine or other chemicals, this self-contained model B Sterozone water purification unit is completely portable. It is light in weight and may be dropped by parachute in remote areas.

Equipment sterilizes water, killing all bacteria, controls taste and odor, and reduces color. Capacity of model is up to 1200 gallons of water per hour. Operation is fully automatic and is claimed to be low in cost. Made by **Technicraft Engineering Co.**, 5612 S. Soto St., Los Angeles, Calif.

▲ Mention Item NED-4620 when writing ▲

PLATFORM TRUCKS



With improvements along safety lines, including wiring panel cover, side plates to cover driving unit which afford added protection, and safety guards on operator's platform, this model LWH platform truck has rear axle drive. Drive axle is made in one piece and is totally enclosed.

Frame is arc welded and braced. Motor with all driving gears can be removed as single unit. Four wheel steering is made possible by vertical operating lever. Leaf springs of highway truck type support load on drive axle. Axle is exactly positioned by heavy radius bars, eliminating wobbly steering.

Unit is supplied with traction brakes of external contracting type on motor shaft. Two shoes are automatically applied by spring pressure when operator releases foot pedal, at which time controller interlock also opens electric circuits.

Battery compartment is removable from chassis. It is connected by means of plug and receptacle. Box is fully ventilated and accommodates batteries up to 24 cell Edison A-10 or C-10. Made by **The Atlas Car & Mfg. Co.**, 1120 Ivanhoe Rd., Cleveland, O.

▲ Mention Item NED-4621 when writing ▲

MEAD BALL-BEARING BANDSANDER
INDUSTRY'S JACK-OF-ALL-TRADES

Also Works On Inside Cut-Out Openings!

Serving a swiftly-growing number of America's important Defense Contractors. For that trouble-some grinding or finishing job, try "Bandsander." If it doesn't help you, it won't cost you a cent! There is not one industrial plant in America where "Bandsander"—somewhere along the line—cannot be helpful. Tool-room, template department, production line, or elsewhere — "Bandsander" will find its place. Try it at our expense. Satisfactory preference rating required for prompt delivery.

TYPICAL BANDSANDER JOBS

De-burring stampings and other small parts. Removing "flash" from forgings and die-castings. Grinding cutters and tools. Cleaning up irregular edges. Smoothing and polishing metals of all kinds.

MEAD SPECIALTIES CO.
15 S. MARKET ST. Dept. 9-N CHICAGO

▲ Mention Item NED-4622 when writing ▲

SPEEDMASTER HOISTS
ARE FAST—RUGGED—POWERFUL

Speedmaster Hoists are built, in every detail, to stand today's rough service. Simple design, and few working parts assure low maintenance and high performance. Equipped with anti-friction bearings throughout. Worm gear runs in oil.

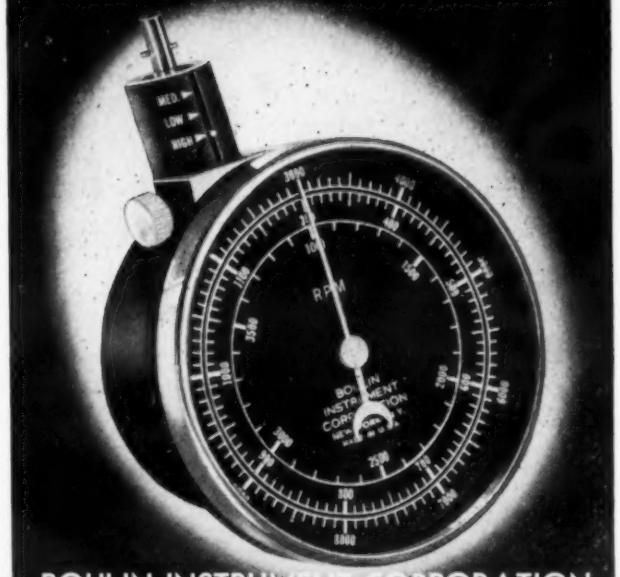
START QUICK—STOP QUICK
HOLD TIGHT—ADJUST FROM OUTSIDE

Speedmaster Hoists are supplied in 14 models for all requirements. Speeds up to 60 feet per minute. Capacities to three tons. Each equipped with the famous Master gear head motor. Write for literature and name of representative near you.

MASTER ELECTRIC COMPANY
INDUSTRIAL EQUIPMENT DIVISION · DAYTON, OHIO

▲ Mention Item NED-4623 when writing ▲

An accurate and readable triple range hand tachometer designed for heavy duty—its 300 to 12,000 R.P.M. and F.P.M. range meets all normal industrial requirements.



BOULIN INSTRUMENT CORPORATION
PORTABLE AND STATIONARY CENTRIFUGAL TACHOMETERS
PORTABLE CHRONOMETRIC AND STROBOSCOPIC TACHOMETERS
65 MADISON AVENUE, NEW YORK, N. Y.

▲ Mention Item NED-4624 when writing ▲

THE ALL-METAL THERMOMETER

stands shaking up...without breaking down

The reason why the WESTON Thermometer can "take it" is found in its simplified, all-metal construction. There is but one moving element, and even that part is made of enduring metal. There is no gas or liquids . . . no capillary . . . no fragile members. Thus the WESTON not only resists ordinary breakage but it also stands up in applications where vibration is present . . . maintaining its high initial accuracy (within 1% over entire scale) over far longer periods. Available in types, sizes, ranges and stem lengths for Diesel and many industrial applications. Descriptive literature available on request. Weston Electrical Instrument Corporation, 663 Frelinghuysen Ave., Newark, N. J.

WESTON *All-Metal* TEMPERATURE GAUGES

▲ Mention Item **NED-4625** when writing ▲

A CLECO ROTARY GRINDER *for Every Job!*

FROM THE LARGEST TO THE SMALLEST—35 SIZES AND TYPES—
FROM 19 OUNCES TO 15 POUNDS IN WEIGHT—
FROM 20,000 TO 1600 R. P. M. IN SPEED—

PRECISION CONSTRUCTION. Cleco Grinders have alloy steel rotors and cylinders, heat-treated and then ground to exact size, thus insuring smooth, vibrationless operation at all speeds. The highest grade ball bearings are used throughout.

RUGGED DESIGN. The one-piece casting, extending around the spindle and including the cylinder, plus the use of through bolts to hold the handle, provides the utmost in durability. Improved governor design prevents metal-to-metal contact, thus eliminating wear or binding. Cleco Tools are completely rust-proof.

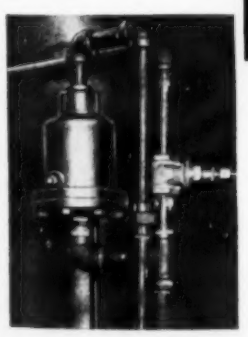
EASY MAINTENANCE. Only four bolts need removal to get at the rotor for cleaning or replacing blades. The automatic oiler and the Zerk fitting on the top bearing promote efficient lubrication at all times.

Write for Bulletin 80 that fully describes Cleco Grinders and includes a large blueprint of construction details.

THE CLEVELAND PNEUMATIC TOOL CO.
3734 EAST 78th ST. CLEVELAND, O.

▲ Mention Item **NED-4626** when writing ▲

Dry Compressed Air 1,073 Ft. Underground!



International Salt Co. licked the wet air problem in the compressed air lines of their Retsof, N.Y. mine with an Aridifier. Four air cylinders operate a measuring gate, located 1,073 ft. underground, which closes when their skip hoist is loaded. *Now*, only clean dry air is delivered to the cylinders, minimizing maintenance.

You can stop corrosion, rust and "water-logging" of air tools, hoists, motors and controls, eliminate spoiled sprayed finishes and gummed sand blast nozzles with an Aridifier. No other unit anything like it—cleans by centrifugal force alone. Thousands in use giving complete satisfaction. For ⅜" to 10" air lines. Send for Bulletin 639.

LOGAN ENGINEERING CO.
4904 Lawrence Ave.
Chicago, Ill.
Offices in Principal Cities

The ARIDIFIER
Dries and Cleans Compressed Air

▲ Mention Item **NED-4627** when writing ▲

ELECTRONIC MICROMETER

Specifically designed for uniform thickness testing of all types of plastics and similar compressible materials, this electronic micrometer is entirely portable. Unit, which is said to have been tested thoroughly in plastics industry, eliminates human element in micrometer readings.

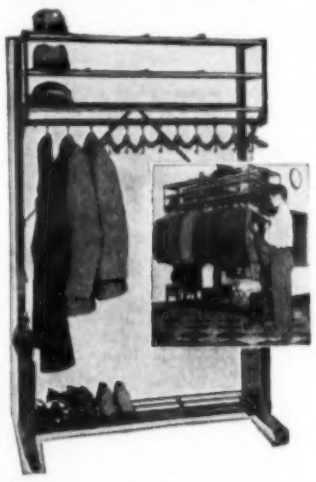
Highly sensitive electronic tubes replace operator's judgment and skill. Thicknesses can be measured to 0.0001 inch whether material be extremely thin condenser sheets or heavy weight bristol.

Electronic circuit gives positive indication of setting point, independent of "feel" on dial. Thickness is read exactly as with hand micrometer. Instrument operates from any 110-volt, 60-cycle circuit. Made by **Instrument Specialties Co.**, 25 Peckman St., Little Falls, N. J.

▲ Mention Item **NED-4628** when writing ▲

WOOD WARDROBE RACKS

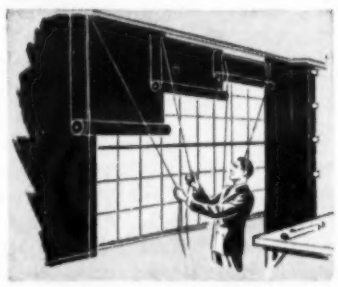
Made almost entirely of wood, this line of wardrobe racks is intended for use in both offices and factories. Design is closely related to that of Peterson steel racks, which it replaces. Finish is such that units can be added to existing installations without affecting harmony.



Wardrobe racks are available in single wall type units or double back-to-back styles. They can be made up in any length to suit user's needs. Racks provide space for coats or jackets of three to six persons per running foot. Space is provided for hats, coats, umbrellas and overshoes. All clothing is exposed to light and air. Made by **Vogel-Peterson Co.**, 1803 N. Wolcott Ave., Chicago, Ill.

▲ Mention Item **NED-4629** when writing ▲

BLACKOUT BLINDS

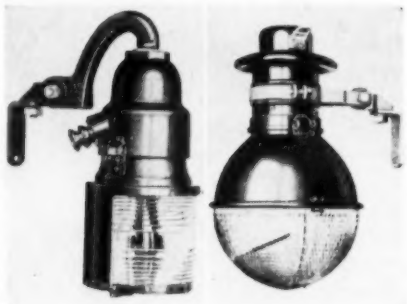


Adaptable to industrial plants, buildings in coastal areas and other structures, these blackout blinds are made of heavy fiber. They are fully light proof and are available at fraction of cost of opaque cloth shades. Being of cord type, blind raises and lowers easily. Method of overlapping permits use in any size or any number of adjacent windows. Material will not pinhole and is flame-proofed which makes it incapable of supporting combustion. Side panels are available for permanent installation at end of series of windows, at corners, posts or other obstructions to insure complete light seal.

Material may be installed on outside of skylights or for blacking out saw-tooth buildings, eliminating reflections as well. Made by **Clopay**, 1207 Clopay Square, Cincinnati, O.

▲ Mention Item **NED-4630** when writing ▲

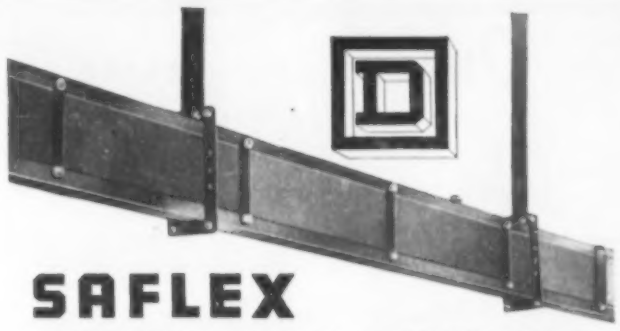
LIGHTING UNIT BRACKETS



Intended for use with either L-M Fresnel or Prismalite luminaires, these adjustable brackets are particularly adaptable for industrial plant protective lighting systems. Shown at left is pendant type with Fresnel unit. This bracket is available for either inner or outer wiring. Both horizontal and vertical setting of light beam is adjustable.

Clamp-around type bracket, shown at right with Prismalite unit, has similar facilities for adjustment so that light can be directed where required. This bracket holds fixture in compression and minimizes breakage. Made by **Line Material Co.**, 808 N. Eighth St., Milwaukee, Wis.

▲ Mention Item **NED-4631** when writing ▲



SAFLEX
(LOW REACTANCE) FEEDER DUCT

Only 1.8 Volts drop per 100 feet • Phases balanced at all points • Only 38° C. temperature rise

● Square D Saflex (Low Reactance) Feeder Duct is designed to serve as the feeder between transformer banks and main switchboard or as feeders to branch circuits where low voltage loss is essential. Because of its low reactance and consequent low voltage drop, it is ideally suited for welder circuits and, as a result, conductor size may be kept at a minimum.

Saflex Feeder Duct is available in standard 10-foot sections with special fittings to meet all types of building structures. Write for complete details.

SQUARE D COMPANY
DETROIT-MILWAUKEE-LOS ANGELES
KOLLSMAN INSTRUMENT DIVISION, ELMHURST, NEW YORK
IN CANADA: SQUARE D COMPANY CANADA LIMITED, TORONTO, ONTARIO

▲ Mention Item **NED-4632** when writing ▲

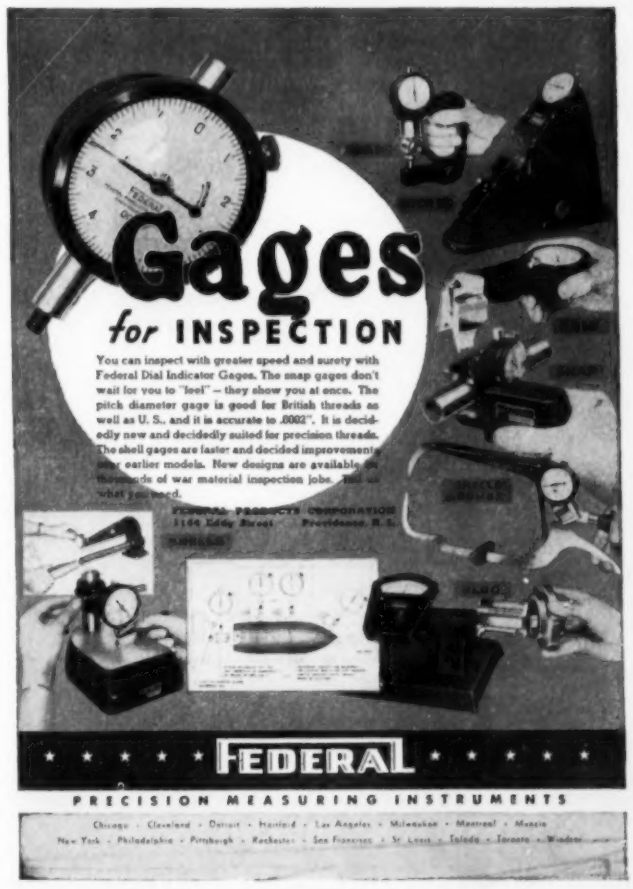
Are You Getting Ready for V-Day?

Sometime there will be a "V-Day" when war stops and the Battle for Business is resumed. Will you be ready with your plans? Will you know what to do with plastics? Why not let our representatives keep you abreast of applications for plastics in the making . . . now, while they have more time to help?

SYNTHANE CORPORATION • N. EAST RIVER ROAD • OAKS, PA.

SHEETS · RODS · TUBES · FABRICATED PARTS
SYNTHANE
Bakelite — laminated
SILENT · STABILIZED · GEAR MATERIAL

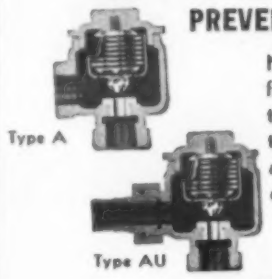
▲ Mention Item **NED-4633** when writing ▲



▲ Mention Item **NED-4634** when writing ▲

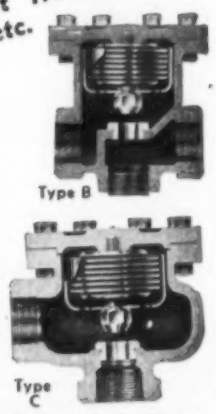
Quick SNAP ACTION

PREVENTS STEAM WASTE



Nicholson Traps need but a few degrees differential between steam and condensate to open valve. Completely and automatically drain without steam loss.

Specify NICHOLSON TRAPS for Better Drainage of Unit Heaters Pipe Coils, Water Heaters, etc.



NO AIR-BINDING . . . no adjustment . . . no dribbling . . . no freeze-ups (types A, AU and C drain completely when cold, hence cannot freeze.) Two to six times greater capacity than average traps. Increase process production as much as 30%. Five types, sizes 1/4" to 2". Immediate delivery. Bulletin No. 242.

W. H. NICHOLSON & CO.
162 OREGON ST., WILKES-BARRE, PA.

Piston and Weight Operated Steam Traps, Compressed Air Traps, Gasoline Traps, Steel and Stainless Steel Floats, Flexible Couplings, 2-3 and 4-way Valves, Compression Shaft Couplings, Expanding Mandrels, Arbor Presses, Steam Eliminators and Separators.

▲ Mention Item **NED-4635** when writing ▲

Your Cheapest Choreman
for odd jobs that cost you time and money

At leading mill supply houses, or send 10c for sample can.
Samuel Cabot, Inc., 1458 Oliver Building, Boston, Massachusetts

The original penetrant and rust solvent **TASGON DID IT!**

▲ Mention Item **NED-4636** when writing ▲

There's No Slipping Hazard Here . . .

Alundum Tile is Permanently Non-slip

PRODUCTION time lost when skilled help is laid up by accidents can be a serious handicap today.

When a firm, sure footing is desirable in front of machines, use panels of Alundum Floor Tile. Neither water nor oil will lessen its non-slip effectiveness and it will never wear slippery from continuous use.

Send for catalog on NORTON FLOORS—it gives full information on all four types of Alundum non-slip and non-resisting floor and stair materials. Just ask for Form 1935-NED. No obligation.

NORTON COMPANY
Worcester, Mass.

T-483

NORTON ABRASIVES

▲ Mention Item **NED-4637** when writing ▲

FENCE DETECTION SYSTEM

Giving visual and audible signals at central control station when any person attempts to trespass through, over or under any fence, this Interceptor detection system is particularly

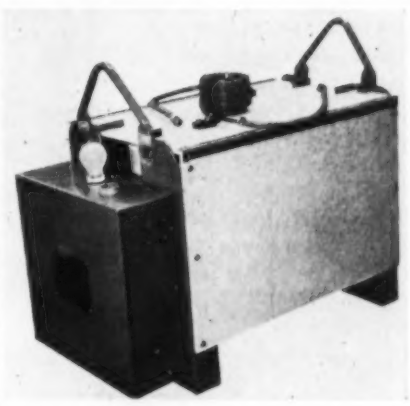
adapted to industrial plants, warehouses and grounds for prevention of sabotage or pilferage. Persons attempting illegal entry are unaware that alarm has been given.

Red light indicates point of disturbance simultaneously with continuous audible signal at plant guard headquarters or control station. Should wiring be severed, blue light and audible signal will operate simultaneously. Neither red or blue lights of signal may be restored to normal except by manual push button, located on main control panel.

Interceptor pick-up unit is permanent magnet, vibration pick-up of variable reluctance type. These devices, sealed in noncorrosive metal housing, are mounted to standard size fence posts. Amplifiers may operate on either alternating or direct current, though battery operation is recommended because of constant voltage and insurance against power failure. Pick-ups may be placed and any desired intervals along fence, up to 360 feet apart. Made by **Telectron Engineering Co.,** 381-83 W. Thirty-eighth St., Los Angeles, Calif.

▲ Mention Item **NED-4638** when writing ▲

INDUCTION HEATER



Equipped with induction coils, this a.c.f. 60-cycle low-voltage, low-temperature induction heater will heat Nitralloy bushings, 3⅞-inch outside diameter by 3⅝-inch with ¼-inch wall, to 400 to 500 degrees in 75 seconds with 25-kilovolt-ampere demand.

This same type of transformer is being used in aircraft plant to heat steel crankshaft 9⅞ inches long and 4¼ inches in diameter. Heat of 400 degrees Fahr. is attained in approximately three minutes. Frozen bushings are inserted in top and lower end of shaft. Expansion of crankshaft of between 0.010 and 0.011 inch is obtained through induction heating, permitting parts to be inserted.

Similar transformer, rated at 150-kilovolt-amperes, is used for heating axles, 7 feet long by 4½ inches in diameter, to temperature of 500 degrees Fahr. in approximately one minute. Blocks on ends of leads are pressed firmly by air cylinders against ends of shaft. Temperature rise is through resistance method. Made by **American Car & Foundry Co.,** 36 Church St., New York City.

▲ Mention Item **NED-4639** when writing ▲

WEAR MEASURING GAGE

Developed for measuring precisely amount of material removed from metallic surfaces after they have been subjected to wear, abrasion, grinding, honing or lapping, this McKee wear gage will determine maximum wear to 0.0014 and minimum wear to 0.000015 inch. Measurements can be made on inside surfaces of cylinders having minimum diameter of 2-7/32 inch on flat surfaces, on outer surfaces of cylinders down to 1/32 inch in diameter and on spheres down to ¼ inch in diameter.

Unit consists of four main parts. They are indenter, measuring microscope, cylinder indentation locater and polishing template. Each instrument is supplied with multiplying factor for converting microscope readings to indentation depth. If surface is curved, correction must be made to depth measurement by referring to correction formula and table supplied with unit. Made by **American Instrument Co.,** 8010 Georgia Ave., Silver Spring, Md.

▲ Mention Item **NED-4640** when writing ▲

NOT ONLY POWER . . . but time-saving flexibility and wide adaptability . . . Snap-on *heavy duty* wrenches provide "small tool" speed and efficiency for the biggest, toughest nut-turning jobs.

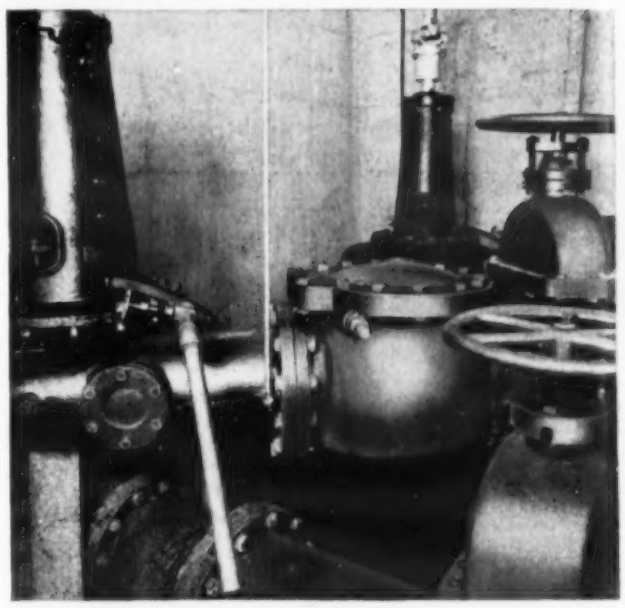
Speed with safety! Snap-on sockets, instantly interchangeable in a wide range of sizes, lock securely to the handle, can't pull off through accident or carelessness.

Powerful Snap-on wrenches are available in complete series of Heavy Duty, Extra Heavy Duty and Jumbo Socket and Loxocket (illustrated) wrenches; Boxockets, Sledge Wrenches and Torqometers (Torque measuring wrenches). 3,000 Snap-on tools provide a wide selection of tool equipment. 35 factory branches in key cities assure prompt service. For catalog and address of the nearest branch, write

Snap-on Tools for Production, Service, Maintenance

SNAP-ON TOOLS CORPORATION
8042-I 28th Ave. Kenosha, Wis.

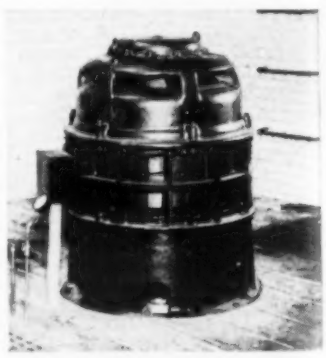
▲ Mention Item **NED-4641** when writing ▲



RUEPING LEATHER SOLVES DISPOSAL PROBLEM WITH FAIRBANKS-MORSE PUMPS

Rising demands of wartime needs have necessitated an increase in output at the Fred Rueping Leather Co., Fond du Lac, Wis.—just as they have in many other industries. Before output could be increased, however, the company discovered that its existing waste disposal equipment was inadequate to meet the tannery waste of stepped-up production.

To solve the problem, the company built a new pump house adjacent to one of two collection tunnels; and two Fairbanks-Morse 10" vertical, dry-pit trash pumps with a rated capacity of 3500 GPM at 80-ft. heads were installed.



Each of the pumps is driven by a 100-hp. F-M Motor through a short length of flexible shafting. One pumping unit operates alone to handle the normal flow of tannery waste, while the other pump provides 100% stand-by service. To equalize the load, the pumps are operated alternate weeks.

To keep pace with stepped-up production in industry, many companies today are standardizing on Fairbanks-Morse Pumps. They help eliminate interruptions to normal operations . . . operate efficiently with no stoppage, no breakdowns, no letdowns—now or later!

Use your priority to secure Fairbanks-Morse Pumps—and keep up production today, as well as in the years of peace to follow. For complete details, write Fairbanks, Morse & Co., 600 S. Michigan Ave., Chicago, Ill.

▲ Mention Item **NED-4642** when writing ▲

INDUSTRIAL LIGHTING AT ITS BEST . . .

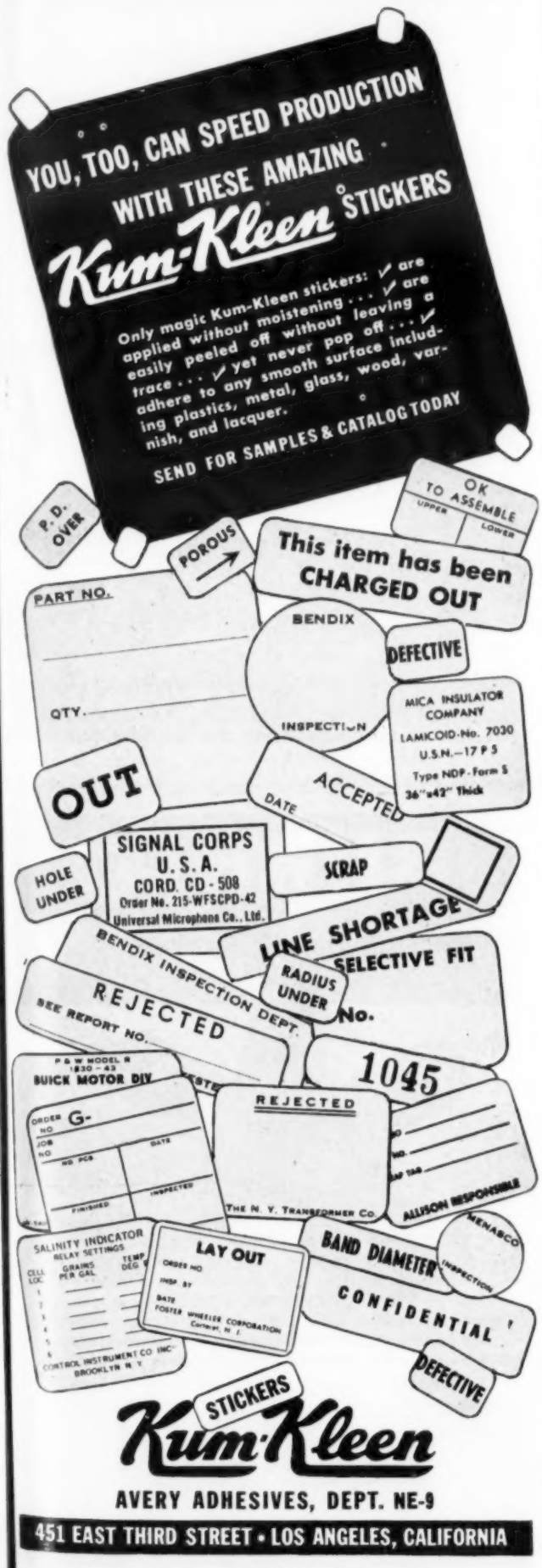
CHECK THIS *NEW ECONOMICAL* INDUSTRIAL UNIT BEFORE YOU BUY FLUORESCENT LIGHTING.

- For individual or continuous line installation.
- Patent "*One Man Installation*" device for easy hanging, and wiring is accessible without dismembering the fixture.
- Provision for a third lamp that may be added without taking the fixture down.
- "Klasium White" reflecting surface, Lighting Products' exclusive *permanent* finish.

Write for Bulletin 275 and "Klasium" Folder with an actual sample of this specially compounded enamel for your inspection.

LIGHTING PRODUCTS, INC.
1225 Deerfield Road, Highland Park, Ill., U. S. A.

▲ Mention Item **NED-4643** when writing ▲



▲ Mention Item **NED-4644** when writing ▲

TOOLMAKER'S COMPASS

Designed to overcome difficulty encountered in attempting to scribe small circles with dividers, this rivet compass with pencil adapter will give positive accuracy and speed in drawing circles from few thousandths to ⅝ inch in radius.

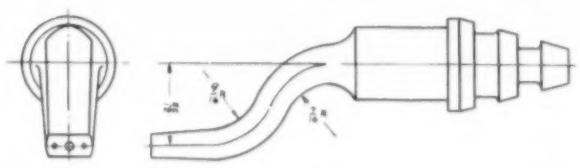
Center of unit is stationary and compass body is free to slide up and down and to rotate about it. Hardened lapped bushing is provided to insure accurate slide fit of pivot needle in compass body. For maximum rigidity and accuracy, compass is used with scribing needle as short as work will permit. For larger circles, scribing needle is set to its greatest length.

Device is supplied in durable case, complete with scribing needle, pencil adapter and supply of leads. Price is $10. Made by **The Ithaca Scientific Instrument Co.**, Ithaca, N. Y.

▲ Mention Item **NED-4645** when writing ▲

FLAME CUTTING TIPS

Bent in an offset shape to permit cutting along line 21/32 inch from vertical centerline of torch head or barrel, this style 108 oxyacetylene flame cutting tip is particularly adaptable



for working in close quarters. Offset design solves problems encountered in cutting close to bulkheads, flanges or shoulders where radius of torch head would prevent alignment of cutting orifice vertically over desired line of cut.

Tool has flat milled sides with two preheat flames, and it is suitable for either machine cutting or hand cutting operations. It is available in size numbers 1 to 3 for cutting steel up to 1½ inches thick.

Second style, No. 139, has straight tip with preheat orifice and is designed for certain machine or hand cutting operations. It is particularly adapted to splitting angle iron, straight line cutting using straight edge as guide, or sheet metal cutting operations in which light preheat is desired. Made by **Air Reduction Sales Co.**, 60 E. Forty-second St., New York City.

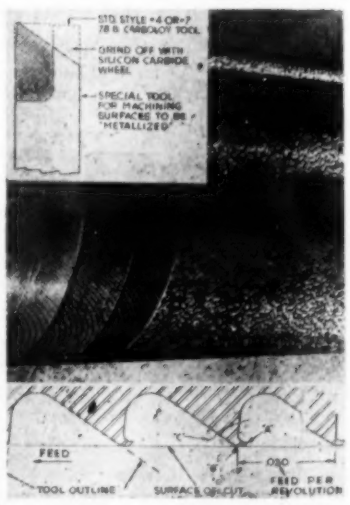
▲ Mention Item **NED-4646** when writing ▲

GLUE EXTENDER

Added to all types of glue, Micromite glue extender will produce greater quantity and at same time will add body and provide free flowing glue. Product is finely ground mineral which can be added in quantities as high as 25 per cent. Its use is intended to decrease amount of glue required and thus alleviate present shortage. It is furnished in 50-pound bags. Samples will be sent to manufacturers wishing to test material. Made by **Tamms Silica Co.**, 228-30 N. LaSalle St., Chicago, Ill.

▲ Mention Item **NED-4647** when writing ▲

MACHINING FOR METALLIZING



In solving the problem of creating rough surfaces on parts in preparation for metallizing, Carboloy engineers used the reverse of grinding tools correctly for smooth surfaces. Standard style 4 tools were ground to unorthodox shape as shown in upper insert.

What happened when this tool was used to machine piece of tough alloy steel is shown in largest illustration. Cuts are 0.01, 0.015 and 0.02 inches deep respectively and feed is approximately 0.03 inches. Cutting speed was approximately 200 to 250 feet per minute. Surface at extreme right is perfect for metallizing, furnishing correct roughness to mechanically bond sprayed metal to part.

This method replaces more expensive knurled tools, dovetail shaped tools and other devices which worked to satisfaction with standard steel, but failed when applied to hard-to-machine alloys. Lower illustration shows how tool lifts some of the crests intermittently, presenting mottled surface which is ideal base for sprayed metal. Carbide tools made by **Carboloy Co.**, 11163 E. Eight Mile Rd., Detroit, Mich.

▲ Mention Item **NED-4648** when writing ▲

▲ Mention Item **NED-4649** when writing ▲

(1) WELD-LIKE SET-UPS: Allen Hollow Screws — Set, Cap and Flat Head Cap — hold parts together with a grip that defies vibration. Made from special-analysis alloy steel (ALLENOY) scientifically heat-treated and precision threaded to a high Class 3 fit.

(2) FAST, EASY ASSEMBLY: With the handy hex keys, "Allens" can be set up quickly in hard-to-get-at places where open end wrenches cannot be worked.

(3) ECONOMICAL and IMPROVED DESIGNS: "Allens" open a way to substantial savings in materials because of their tremendous strength and gripping power, — which makes possible the use of smaller sizes of screws, smaller flanges and lighter parts, and permits more compact designs.

(4) LOW MAINTENANCE: With these screws there are no slots to burr or become worn; no heads to become round-cornered. Replacements are practically never necessary since every screw is guaranteed perfect, being instrument-tested at every stage and inspected visually and manually.

Call on your local Allen Distributor for samples and advisory service.

THE ALLEN MANUFACTURING COMPANY
HARTFORD, CONNECTICUT, U. S. A.

▲ Mention Item **NED-4650** when writing ▲

LIFE for Workers and Machinery

when you install --- **TORIT DUST COLLECTORS**

Abrasive dust and grit permitted to circulate at large, wherever men and machines are at work, will cause untold damage both to machines and to health of employees.

TORIT Self-contained DUST COLLECTORS attached to grinding, buffing and cutoff machines will efficiently and economically trap this dust hazard. TORITS are portable—may be placed wherever needed.

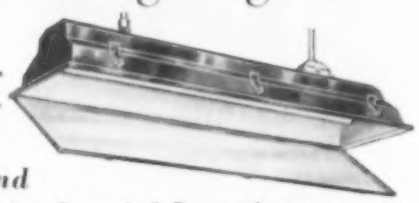
Write for bulletin giving the TORIT features, specifications, and prices. We will gladly help you solve your dust control problem.

TORIT MANUFACTURING COMPANY
298 Walnut Street
St. Paul, Minn.

TORIT Dust Collectors
SELF-CONTAINED UNITS

▲ Mention Item **NED-4651** when writing ▲

Wheeler "II-G" DUST-TIGHT Fluorescent Lighting Units



Underwriter-Approved for "Class II-G" Hazardous and Other Exacting Special Locations

Wheeler DUST-TIGHT Fluorescent Fixtures meet Underwriters' requirements for Class II-G, Class III and Class IV Hazardous Locations. Also advantageous in many other locations where lamps, sockets and reflecting surfaces must be protected from non-combustible dusts and vapors.

All units supplied complete with latest type high-power-factor ballasts employing separate renewable starter switches. Hinged Dustight Glass covers give easy access to lamps and starter switches. Available with ¼" Water-White Plate Glass, ¼" Tempered Clear Safety Plate Glass, or 3/16" Double-Thick Plain Clear Glass. Units furnished with suitable mounting flanges for conduit suspension.

Write for complete information. **Wheeler Reflector Co., 275 Congress St., Boston, Mass. . . . New York . . . Cleveland. Representatives in principal cities.**

Wheeler
REFLECTOR COMPANY
Lighting Equipment Specialists Since 1887

▲ Mention Item **NED-4655** when writing ▲

TRAMP iron costs American industry and the American war effort more time and money every day than any sabotage of enemy agents.

Ask your insurance company how many hundreds of dust explosions have been traced directly to sparks from tramp iron.

Ask the legal profession how many damage suits result from tramp iron in food.

Ask the farmers how many livestock have been lost due to tramp iron in feed.

Ask industry how many crusher, grinders and other machines have been damaged by tramp iron.

ASK YOURSELF—can I afford to be without protection against this menace?

The best protection against tramp iron that money can buy is a Dings High Intensity Magnetic Separator. Write for details.

Dings MAGNETIC SEPARATION HIGH INTENSITY

DINGS MAGNETIC SEPARATOR CO.
520 E. Smith St. Milwaukee, Wis.

▲ Mention Item **NED-4656** when writing ▲

THE FLOOR ARMOR THAT ROLLS OUT LIKE A RUG

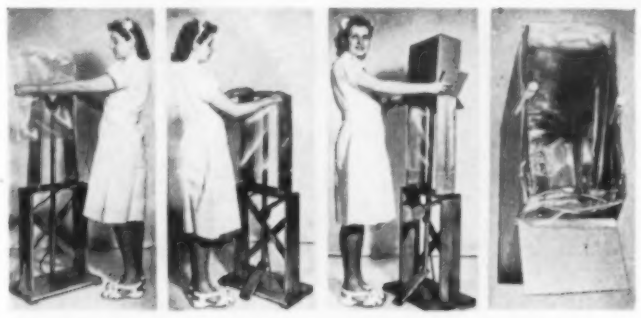
Flexible steel grid easily and quickly laid by any workmen over old or new (concrete or wood) floors, and filled flush with concrete or mastic. Makes a solid level floor that will withstand the roll of heavy trucks, the thumping and pounding of the years! Does away with cracks, crumbling, potholes. Practically eliminates maintenance costs. Send for Complete Catalog.

WM. F. KLEMP COMPANY
"Steel Flooring Specialists"
6607 S. Melvina Ave. Chicago, Illinois

▲ Mention Item **NED-4657** when writing ▲

PACKAGING EQUIPMENT

Designed to facilitate insertion of Cellophane pouch liners in large size cartons, this expanding mandrel may be used for packaging of frozen and powdered eggs, powdered milk, all



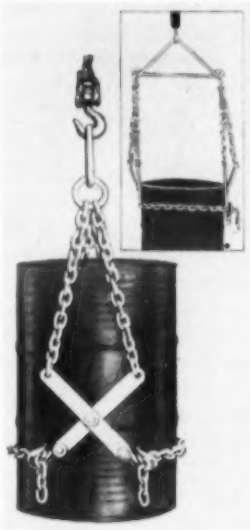
frozen and dehydrated foods, vegetable and animal shortenings and similar products.

Operator slips cellophane pouch over contracted flaps of mandrel, depresses self-locking foot pedal, which expands flaps, and pouch is held in box-like position. It then has rigidity so that ears can be easily folded over. Then carton is slipped over pouch. Operator then trips knee lever, which releases flaps so that carton with its pouch liner can be easily removed for filling.

Furnished complete with stand, unit is light in weight and easily portable. Made by **Pack-Rite Machine Corp.**, 828 N. Broadway, Milwaukee, Wis.

▲ Mention Item **NED-4658** when writing ▲

BARREL LIFTER

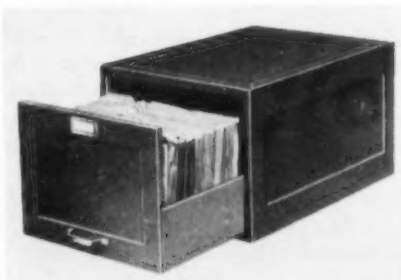


Capable of picking up any type of steel or wood barrel, box or container, from 40 inches in diameter down to small nail keg, this "Barrel Grab" will lift loads within this classification weighing up to 2000 pounds.

Toggle is constructed of ½-inch by 2-inch flat bar stock and pivoting pin of 1-inch cold rolled steel with retainer head. Chain is made of ⅜-inch steel, while spacer and hoisting bar are made of ¾-inch diameter cold rolled steel bar. Unit is so constructed that heavier loads force tighter grip, assuring safety and speed. Made by **Palmer-Shile Co.**, 7114 West Jefferson Ave., Detroit, Mich.

▲ Mention Item **NED-4659** when writing ▲

TRANSFER CASES

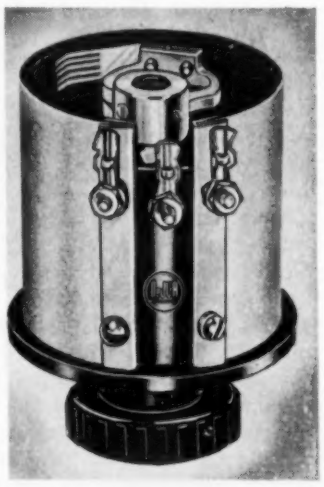


For war time storage needs, this Recruit wood transfer case is effective and dependable product. It may be used for economical storage filing. Manufacturer says unit will give satisfactory service and at same time conserve steel.

Cases are made of air seasoned, kiln dried wood. These cases may be loaded to capacity as they are furnished without compressor or guide rod, which assures maximum space for storage filing. Made by **The Globe-Wernicke Co.**, Carthage Ave., Norwood, Cincinnati, O.

▲ Mention Item **NED-4660** when writing ▲

RHEOSTAT



Available in wattage sizes of 6, 11 and 20-watt ratings and resistance ranges from 1 to 200,000 ohms, these rheostats are fully protected against all elements of corrosion and have maximum number of steps per degree of resistance winding. Contact wiper adjustment is so designed as to assure constant uniform pressure against winding without noisy circuit conditions.

Unit can be used in any type of electrical circuit requiring rheostat or potentiometer aand is favorably designed for vacuum tube circuits. Special lengths of shafts, slotted, insulated or metal, can be furnished on request.

Tapped inserts molded into Bakelite frame make it unnecessary to reach inside of unit for mounting necessary nuts. Made by **De-Jur-Amsco Corp.**, Shelton, Conn.

▲ Mention Item **NED-4661** when writing ▲

TO MEASURE...

Transmission of Light through Liquids Quickly and Accurately

The G-E luximeter

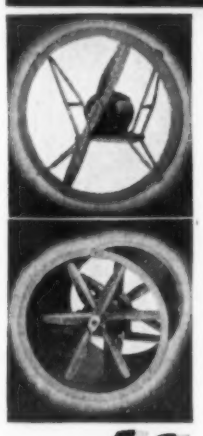
THIS small, compact instrument can be used wherever it is desirable to measure the degree to which a liquid transmits light. It also measures turbidity within the range of 100–3500 parts per million on the silica scale.

For further details on how this device can help you, call or write the nearest G-E office. Full information in Bulletin GEA-3451. ***General Electric Company, Schenectady, New York.***

GENERAL ELECTRIC

▲ Mention Item **NED-4662** when writing ▲

QUICK SHIPMENT *for War Industry on* HARTZELL FANS



We are trying to meet the needs of war industry by holding stocks of fans, blowers and parts as complete as possible. Immediate shipment of standard products is sometimes possible. Quick production is assured.

Hartzell air-movement throws heat, dust, fumes out of plants—clears up hot spots—cools workers—cools and dries products. Speeds war production! Simple, efficient, trouble-proof, economical. Come to headquarters for quick, resultful action!

Hartzell
PROPELLER FAN CO.
DIVISION OF CASTLE HILLS CORP., PIQUA, OHIO

VENTILATION HEADQUARTERS
SALES-ENGINEERING OFFICES IN PRINCIPAL CITIES

▲ Mention Item **NED-4663** when writing ▲

BURNDY *Versi-Lug*

FOR CONNECTING CABLES AT ANY ANGLE

• A flick of the finger, and the cable socket is ready to receive the cable at any desired angle. Tighten the bolt of the Versi-Lug with a wrench and the job's done. Remember, your wholesaler sells the Versi-Line.

OTHER CONNECTORS IN THE VERSI-LINE ARE ILLUSTRATED BELOW

BURNDY ENGINEERING CO., INC. • 459 E. 133rd ST., N. Y. C.

▲ Mention Item **NED-4664** when writing ▲

Make Things Last WITH PAINT

Structural materials are critical materials and are not replaceable Patriotic and economic necessity demand that you protect them immediately—make them last with paint. This Handbook explains much that you should know about protecting structural material.

MAINTENANCE EXECUTIVES—

You need this HANDBOOK

It simplifies your building maintenance problems. It tells you HOW—to harden cement floors—to rust-proof steel sash, tanks and structural work—to slip-proof floors and landings—to dust-proof cement floors and stairs—to acid-proof steel work—to protect and restore wood floors—to reduce sun glare—to waterproof new construction—and how to get efficient, economical solutions to many more maintenance problems.

FREE—*to plant maintenance executives. Request must be written on business stationery to Dept. D-4.*

TRUSCON LABORATORIES • Detroit, Mich.

▲ Mention Item **NED-4665** when writing ▲

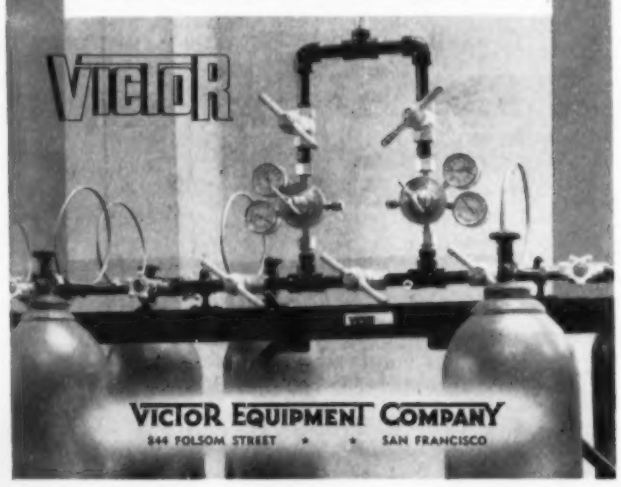
EMPTY CYLINDERS SERVE NO ONE

Speed up cylinder turn-over
Stop work interruption
Save precious oxygen and acetylene

Cylinder Manifolds and Pipe-line Distributing Systems are the proved means to speed up weld production—the best method of reducing gas wastefulness, cylinder turn-over and cost of handling.

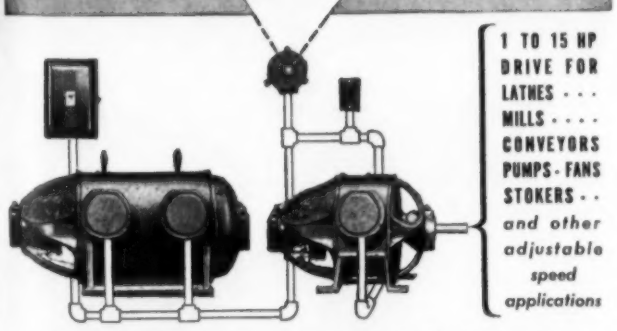
VICTOR Cylinder Manifolds are sturdily made and embody many useful design features to simplify operation.

IT COSTS LESS TO OWN AND OPERATE VICTOR APPARATUS



▲ Mention Item **NED-4666** when writing ▲

10-TO-1 SPEED RANGE FROM A-C POWER

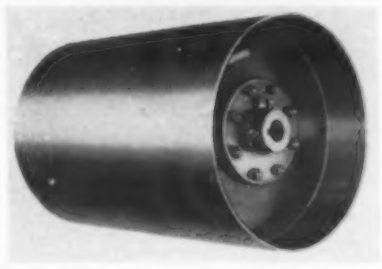


Here's the new, low-cost way to get adjustable speed, constant torque drive from a-c power. The Westinghouse Adjustable Speed A-C Drive provides instant speed adjustment from 175 rpm to 1,750 rpm for continuous operation—slower speeds for starting or setup. No exciters, clutches or complicated control. Push button starts or stops the drive—a single rheostat controls the speed. Nothing else to buy. Write for bulletin DD-4063. Westinghouse Electric & Manufacturing Company, East Pittsburgh, Dept. 7-N. J-21171

Westinghouse
A-C ADJUSTABLE-SPEED DRIVE

▲ Mention Item **NED-4667** when writing ▲

CONVEYOR PULLEYS

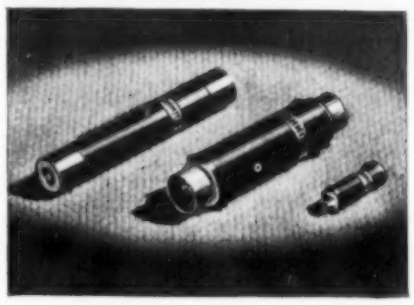


Made with tight ends, this type N pulley is easily kept clean. No spilled materials or dust or water can accumulate inside pulley. Unit is made of rolled steel. It is light in weight and practically unbreakable. It can be removed readily and interchangeable hubs assure quick, easy mounting. Pulleys are available in diameters ranging from 6 inches up to and including 36 inches. Bores can be changed easily by simply changing hubs. This also simplifies mounting problem of wide faced pulleys. Face widths range from 20 to 50 inches

All rims are of one-piece construction and are welded to form perfect cylinder. These units are designed for 125 pounds effective belt tension per inch width of face. Made by **The American Pulley Co.**, 4245 Wissahicken Ave., Philadelphia, Pa.

▲ Mention Item **NED-4668** when writing ▲

FERRULE TYPE RESISTORS



Designed for easy interchangeability without use of tools, these ferrule resistors are particularly adaptable to aircraft and railroad equipment. Units can be supplied in accordance with Navy specifications and in wide range of sizes.

Even winding of resistance wire on ceramic core is protected by vitreous enamel coating. Wire is terminated on metal bands or ferrules which permit mounting in fuse clips. Cup, sleeve or cartridge type ferrules are standard.

Special ceramic cores with special coating which will withstand repeated immersions alternately from ice cold water to hot water are available. Protective coatings which will pass salt water immersion tests are also available. Made by **Ohmite Mfg. Co.**, Dept. 4B, 4821 Flournoy St., Chicago, Ill.

▲ Mention Item **NED-4669** when writing ▲

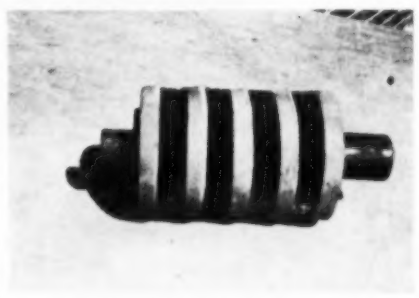
POWER SQUARING SHEAR

Having cutting length of 20 feet and by utilizing gap in housings, this power squaring shear has convenient operation qualities and quick gaging speed that reduces operator's fatigue. Unit is self-measuring, and has ball bearing, parallel back gage measuring in increments of 1/128 inch. Full visibility of cutting line facilitates cutting to scribed line.

Drive mechanism operates on anti-friction bearings and is completely enclosed in an oil-tight case. Made by **Niagara Machine & Tool Works**, 637-697 Northland Ave., Buffalo, N. Y.

▲ Mention Item **NED-4670** when writing ▲

PIPE POWER CLEANER

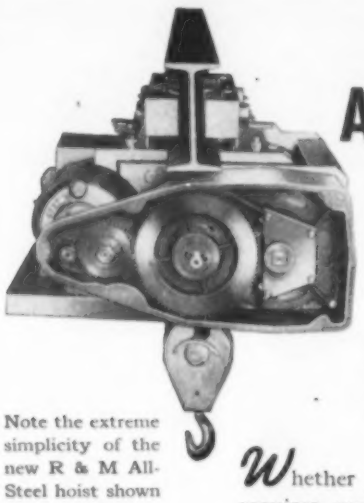


To keep pipe lines open and free of corrosion, this power brush is said to be capable of cleaning 4 to 5 miles of pipe per hour. Whether pipe lines carry oil, gas or other materials, there is always sludge that forms on interior. These brushes, in form of discs, are fastened to cylindrical fixture having flange at either end to hold brushes and rubber-like separators between brush sections. Discs are slightly beveled with diameter at one edge slightly smaller than diameter of pipe and diameter at other edge is slightly larger. This assures tight fit.

After brush is inserted into pipe and pipe is capped or it is inserted into pipe past gate valve which is closed. Air under very high pressure is then applied inside pipe in such way as to force brush forward. Brush being made of wire, has cutting as well as cleaning action. Made by **Osborn Mfg. Co.**, Brush Division, 5403 Hamilton Ave., Cleveland, O.

▲ Mention Item **NED-4671** when writing ▲

R & M ALL-STEEL HOISTS



Note the extreme simplicity of the new R & M All-Steel hoist shown above, with cover removed. There are no useless "gadgets" to cause trouble and reduce efficiency. All mechanism can be easily withdrawn.

New design . . . simplified mechanism . . . for lower headroom, faster load handling, and greater operating economy!

Whether your material handling requires moving 1,000 pounds or 15,000 pounds, there's an R & M all-steel hoist that will do the job better. Get complete facts on the R & M line of all-steel hoists, including R & M's newest all-steel, low-headroom "production speeder" and "space saver."

Write now for Folders No. 800 and 801-NED. It will pay you to "take it up" with R & M—today.

ROBBINS & MYERS, INC.
HOIST & CRANE DIVISION, SPRINGFIELD, OHIO

▲ Mention Item **NED-4672** when writing ▲

Heavy Ammunition Locker Hardware

HARDWARE for ORDNANCE EQUIPMENT

The Stanley Works, largest manufacturer of hinges and hardware specialties, offers unusual facilities for supplying locker hardware and other ordnance items.

METAL STAMPINGS

are also made to order in all types required for ordnance equipment. Tell us what you need and in what quantities. Send complete details, including prints if possible. We'll help you meet delivery schedules.

THE STANLEY WORKS
ORDNANCE HARDWARE DIVISION
NEW BRITAIN, CONN.

▲ Mention Item **NED-4673** when writing ▲

Send for this Catalog--

"DATA ON KIRK & BLUM PRODUCTION FACILITIES"

Prepared for the purpose of showing how we can fit into your production picture by fabricating your sheet metal products with speed and economy.

This catalog is illustrated with many of the different sheet metal parts and assemblies we have fabricated; also shows a list of our mechanical equipment.

It is yours for the asking.

THE KIRK & BLUM MANUFACTURING CO.
2813 SPRING GROVE AVE. CINCINNATI, OHIO

▲ Mention Item **NED-4674** when writing ▲

ACCURATE SERVICE means:

• Giving you the exact springs you want—exactly when you want them—is the basis of Accurate quality and service. Starting with your specifications and instructions and ending only when your springs are on the way, there is careful attention and control present through every stage of production. Testing? Inspection? Thoroughness? Surely . but not a waste motion! Accurate experience "know-how" and a smooth working organization is the answer.

You will like the cooperation you will get here, and if you have spring or wireform problems we'd like to help you with them.

Send for the new Accurate "Handbook of Technical Data."

Accurate Springs
ACCURATE SPRING MFG. CO.
3805 W. Lake St. Chicago, Ill.
SPRINGS • WIREFORMS • STAMPINGS

▲ Mention Item **NED-4675** when writing ▲

POINTING WITH PRIDE

Good fastenings, special fastenings — manufactured to exact specifications, produced in ordered quantities and on time . . .

New England craftsmanship — American ingenuity — 40 years of experience — combined to serve you best. . .

Those are the basic reasons for turning to PROGRESSIVE with fastening problems. That is why many manufacturers can point with pride to the *stay put* quality of their products.

QUALITY PROMCO BRAND

The PROGRESSIVE MFG. CO.
TORRINGTON · · · CONNECTICUT

▲ Mention Item **NED-4676** when writing ▲

ROCKER-ARM WELDER

Available in 48 different models, these rocker-arm welding machines have three types of drives and full range of throat depths from 12 to 36 inches. Standard capacities are 20, 30, 40 and 50 kilovolt-ampere and 50/60 cycle supply with other frequencies available at slightly higher cost.

Machines are made for foot, air or motor operation. In foot operated type, pressure is obtained through foot pedal connected to rocker arm by mechanical links. Limit switch to initiate operation of contactor at proper pressure is mounted on overtravel spring.

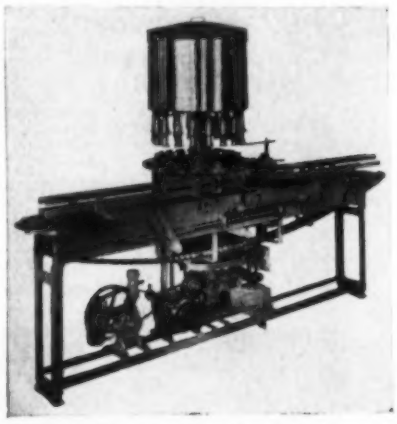
Single acting cylinder with piston rod connected to rocker arm provides pressure for air operated types with pressure regulator as standard equipment. Where air supply is limited, motor driven type is recommended.

Lower arms of unit are designed to provide range of vertical adjustments giving throat opening from 8 to 18 inches with electrodes together. Standard point opening for 12-inch throat depth is 3½ inches. In and out lower arm adjustment is available to insure proper alignment of electrodes. Lower arms may also be rotated so that welding can be performed with electrodes at angle instead of vertical.

All units are equipped with transformers with water-cooled secondaries and steel cores with pancake coils. Eight-stage heat regulator is mounted on back of each transformer. Air line lubricators, angle drilled horns, solenoid clutch, trip or air valves in combination with foot switches are listed among extra equipment. Made by **Progressive Welder Co.**, 3025 E. Outer Drive, Detroit, Mich.

▲ Mention Item **NED-4677** when writing ▲

GRAVITY VACUUM FILLER



Equipped to handle all sizes and shapes of glass and tin containers, this Fowler automatic rotating gravity vacuum filler is available in two models. While actual filling operation is in progress by means of gravity, low vacuum is maintained primarily to detect chipped, cracked or defective containers.

Containers are fed automatically into machine by means of adjustable star feed wheel which accurately centers containers under spouts against adjustable back rest. Bottles with raised decorations are handled without difficulty.

Machine is equipped with safety features that include quick stopping of machine should bottle jam on way in through feed wheel. Choke necks pass through without filling.

All parts coming in contact with liquid can be furnished in stainless steel. Changeovers from different sizes require but few minutes for adjustments. Filling heights are controlled by spacer collars on spouts combined with raising or lowering reservoir. This is done by means of hand crank. Speed of rotation is governed by adjustable V-belt drive. Made by **Scientific Filter Co.**, 1 Franklin Square, New York City.

▲ Mention Item **NED-4678** when writing ▲

COOLANT PUMP

Featuring adaptability as integral part of any grinder, lathe, cutting or drilling machine, this model 7500 coolant pump delivers as high as 70 per cent hydraulic efficiency by actual test. Unit is available in three different depths from flange 4⅞ inch, 9 inch and 15 inch. It can also be made in special depths to suit practically any conditions which may be encountered in applying unit to machines.

Pump is motor driven, open-impeller centrifugal type, submergable, with an outside discharge. Internal piping is eliminated and external piping is reduced to minimum. It is simple and easy to install.

Motor capacity is ⅛ horsepower to 1½ horsepower. Unit controlled flow of any standard coolant fluid is possible, ranging from 4 gallons per minute to 100 gallons per minute. It is also suitable for use with abrasives. Made by **Brady-Penrod, Inc.**, 1202 W. Second St., Muncie, Ind.

▲ Mention Item **NED-4679** when writing ▲

AMAZING NEW LIQUID SHINGLE GIVES FULL PROTECTION

Never before has roof maintenance been so easy—so quick—so sure—so good looking—so economical!

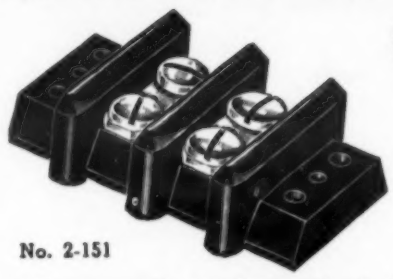
LIQUID SHINGLE, an exclusive product of Flash-Stone Co., gives a protective coating that prevents ingress of water—wind can't get under it—No joints or nail holes to leak. Your roof is sealed by a permanent over-all "mineral shingle" (a self induced amalgamation). Can be camouflaged.

Don't delay—beat autumn and winter weather with Liquid Shingle. Write today for low prices and bulletin.

Flash-Stone CO., INC. 1930 N. 12TH ST., PHILA., PA.

▲ Mention Item **NED-4680** when writing ▲

JONES BARRIER STRIPS Solve Most Terminal Problems



No. 2-151

• A compact, sturdy terminal strip with Bakelite Barriers that provide maximum metal to metal spacing. Prevent direct shorts from frayed wires at terminals.

6 SIZES—Cover every requirement. From 3/4" wide and 13/32" high with 5-40 screws to 2-1/2" wide and 1-1/8" high with 1/4"-28 screws. Jones Barrier Strips will simplify as well as improve the electrical connecting of your products.

Three lines of Jones Multi-Circuit Plugs and Sockets fulfill every connection requirement. Hundreds of standard terminals.

Write today for catalog listing complete line of Jones Electrical Connecting Devices.

HOWARD B. JONES
2304 WABANSIA AVE., CHICAGO

▲ Mention Item **NED-4681** when writing ▲

CULLMAN DRIVE eliminates overhead belting

An individual motor driven unit that can be quickly substituted for overhead drive on lathes, shapers, milling machines, punch presses . . . speeds up the production of old equipment. Folder on request.

CULLMAN WHEEL CO.
1333 ALTGELD STREET, CHICAGO

▲ Mention Item **NED-4682** when writing ▲

HEIN-WERNER HYDRAULIC JACKS

are super-powerful and easy-operating
3 to 30 tons capacity

Available for quick delivery to plants doing war work

If you are moving old machines or setting up new ones—or if you have war production jobs involving lifting, pressing, bending, etc., you probably can speed up your work by using Hein-Werner Hydraulic Jacks.

As one of the oldest and largest manufacturers of hydraulic jacks, Hein-Werner produces jacks that are built right and priced right. And the purchasers of *over a million* Hein-Werner Jacks know that these jacks are compact, sturdy, safe, fast and easy to operate.

This great line includes hydraulic jacks of 3, 5, 8, 12, 20 and 30 tons capacity . . . Consult your industrial supply distributor, or write us for details and prices . . . Quick delivery can be made on orders carrying priority rating.

HEIN-WERNER MOTOR PARTS CORP.
Waukesha, Wisconsin

HEIN-WERNER HYDRAULIC JACKS
Are Built Right and Priced Right

▲ Mention Item **NED-4683** when writing ▲

PRESS SAFETY GUARD

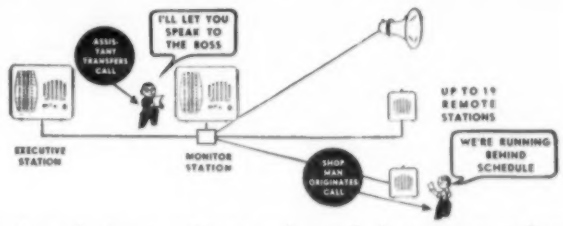
Built to fit any type of punch press, this Enclosure Safguard assures high production rates with complete safety to press operators. In addition to protecting machine operators, this guard also gives freedom of action in feeding stock and permits clear vision of work at all times. Device is instantly adjustable to any size stock, permitting front or side press feed.

Assembly is easily attached. Front and side gates swivel. Adjustable bars can be raised or lowered to suit work, or they may be set at any angle. Transparent shield can be substituted for front staple section in case extra vision is required. Guard may be adapted for blanking; strip, roll or chute feeding; notching; and for use of piercing and cut-off dies. Made by **Strand Mfg. Co.**, 162 N. Desplaines St., Chicago, Ill.

▲ Mention Item **NED-4685** when writing ▲

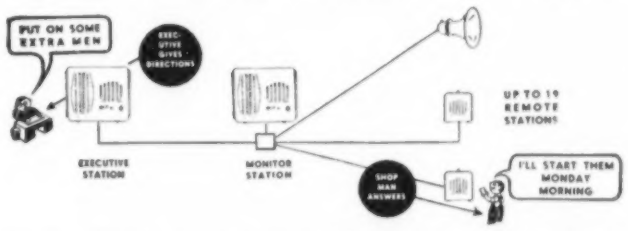
COMMUNICATION SYSTEM

Consisting of two or more master stations connecting up to 19 remote stations in system, this Executone system with intercepter control is said to be ideal arrangement for war



production plants or military and naval departments, where officers must talk to each other, to executive assistants and also to members of departments. Both executive and monitor stations are equipped with busy signals.

Paging button enables user of any master station to call all other stations simultaneously. Persons called can reply re-



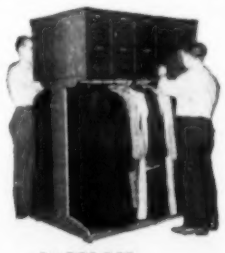
motely. High powered trumpet-type substations provide extra sound volume to cover large space areas or penetrate high-noise level. Push button selection facilitates speed of operation. Electric connection is to 110/120-volt alternating or direct current circuits. Power consumption for entire system is 46 watts. Made by **Executone, Inc.**, Dept. C, 415 Lexington Ave., New York City.

▲ Mention Item **NED-4686** when writing ▲

WOODEN SHOP EQUIPMENT

Made entirely of wood, these Shoprobes, lockers and cabinets replace similar pieces of equipment formerly made of steel and other materials now restricted in use by priorities.

LOCKERS



SHOPROBE
(PAT. NO. 2 202 427)

Providing full length coat hanging space and private locking compartment at convenient height, this Shoprobe is especially suited to industries in which personnel fluctuates and low storage cost is required. Twenty-person unit, double faced, requires only 13-3/5 square feet of floor space. Ten-person unit, single faced, requires only 6-4/5 square feet.

CABINET

ENGINEERED IN **WOOD** FOR THE DURATION

Lockers have hardwood top, bottom and frame. Sides, backs and doors are of pressed wood. Doors consist of two panels of pressed wood mounted on hardwood frame. There are five stock sizes available, four single tier and one double tier.

Cabinets are similar to lockers in their construction. Doors are mounted over hardwood frame and attached with three tight-pin hinges. They are offered in three types; storage, wardrobe and combination. All of above units are finished inside and out in green enamel. Made by **Lyon Metal Products, Inc.**, Dept. B, 3083 Clark St., Aurora, Ill.

▲ Mention Item **NED-4687** when writing ▲

instrument security

IN THE BLACKNESS OF A BOMBING RAID OR THE INNARDS OF A TANK...

When dials contain **LUMI-TONE**

fluorescent phosphorescent or radio active

materials

Let us quote on your application problems. We can apply approved luminescent material on your own dials, or can supply completely finished dials working from blue prints.

GENERAL LUMINESCENT CORPORATION
638 S. Federal St. CHICAGO, ILL.

▲ Mention Item **NED-4688** when writing ▲

MOTOR CONTROLS
FOR ELEVATING AND TRAINING THE BIG ONES

Pointing a thousand tons of gun metal with the ease that your neighbor's kid handles his air rifle is an engineering feat in itself. But directing each movement, both horizontal and vertical, so that the projectile pins its mark, miles and miles away, calls for accuracy of controls seldom required by industry. It is a tribute to the accuracy and dependability of Ward Leonard Motor Controls that our Navy is using so many Ward Leonard control devices for this and other vital functions.

WARD LEONARD

Electric control (WL) *devices since 1892.*

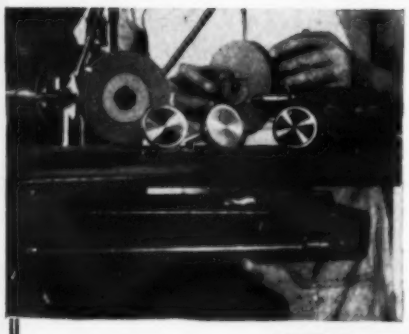
WARD LEONARD ELECTRIC COMPANY
51 South Street, Mount Vernon, N. Y.

▲ Mention Item **NED-4689** when writing ▲

Better Results

IN LESS WORKING TIME WITH

WELDON ROBERTS
Brightboy
REG. U.S. PAT. OFF.



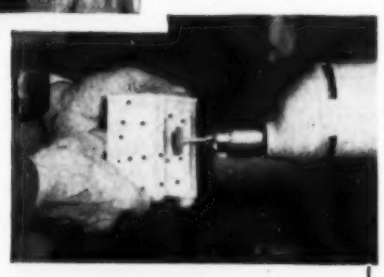
"The Soft Rubber Binder Cushions The Abrasive"

CLEANING—POLISHING

Tools, taps, dies, flush sets, drills, parts, in aluminum alloy, steel or brass

DE-BURRING—FINISHING

Holes and edges in alclad part



IN hundreds of war industries, Brightboy is contributing savings in time and work. Brightboy's action is unique—not a grind or a buff. Brightboy wheels deburr, polish and put on a slight radius, all in one operation. It's the resilient rubber binder that does it! Brightboy shapes for manual work also have innumerable applications. Brightboy is particularly effective in close tolerance operations. Available to war industries through recognized mill supply distributors. Our field men are at your service. Write today for catalogs and prices if your distributor cannot supply you.

BRIGHTBOY INDUSTRIAL DIVISION
WELDON ROBERTS RUBBER CO., Newark, N. J., U. S. A.

Removes Light Digs, Tool and Heat Marks
Cleans Welded and Soldered Joints
Finishes Dies
De-burrs Light Stampings and Machined Parts

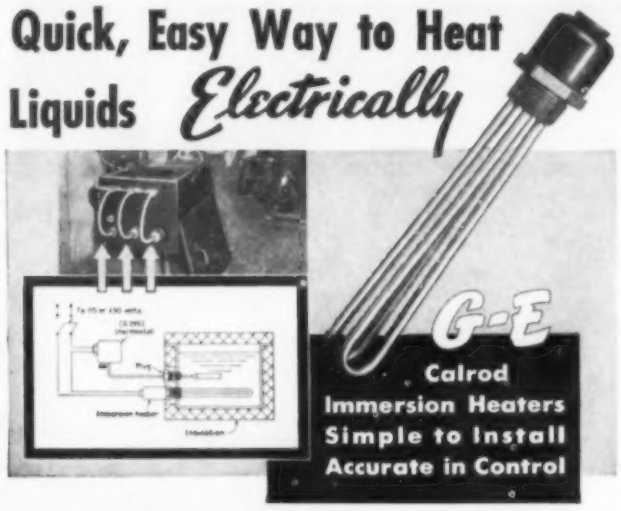
1. **NO "TIME OUT" CHANGES IN METHODS**—*Brightboy is used in the conventional manner.*
2. **NO SPECIAL TRAINING NECESSARY**
3. **NO SPECIAL PREPARATION**—*Ready for immediate use.*
4. **NO WASTE**—*Every bit is usable.*

WHEELS • STICKS • BLOCKS • TABLETS • RODS • SPECIAL SHAPES •

▲ Mention Item **NED-4684** when writing ▲

▲ Mention Item **NED-4690** when writing ▲

Quick, Easy Way to Heat Liquids *Electrically*



G-E CALROD immersion heaters offer you one of the quickest and most accurate methods of heating water, oils, paraffin, and similar liquids. Quickly installed, too. Just screw them into the tank, pipe, barrel, or other metal container you may be using. A thermostat regulates the temperature automatically.

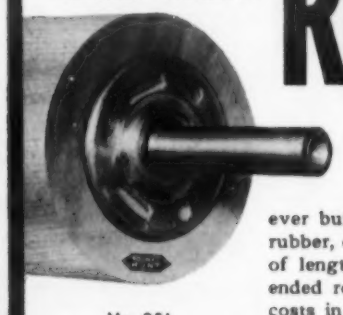
They come in ratings up to 10,000 watts and lengths up to 46 inches. Can be used in any chemical solution that will not corrode common metals. Very economical. Order from a G-E distributor, our nearest office, or direct from Section 675-49, General Electric Co., Schenectady, N. Y.

GENERAL ELECTRIC

▲ Mention Item **NED-4694** when writing ▲

SUPER-STRONG ROLLS

WOOD - METAL
RUBBER - PLASTIC



No. 251
Patented "SHAF-TITE" Roll

Exclusive patented features make Rodney Hunt Rolls the strongest and lowest cost rolls ever built. Made of wood, metal, rubber, or plastic in a wide range of lengths and diameters. Have ended roll troubles and cut roll costs in hundreds of plants.

Write for Catalog

Our new Roll Catalog No. 740 illustrates and describes a wide range of wood, metal and rubber rolls. Also wood and stainless steel reels, showing many patented features.

RODNEY HUNT MACHINE COMPANY
73 Maple Street · Orange, Mass., U.S.A.

▲ Mention Item **NED-4695** when writing ▲

MADE TO ORDER

For special flat metal or odd shaped parts as shown, we maintain a special department where such parts are built to your specifications.

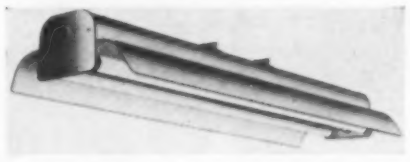
Pressed and sheared to exact dimensions, with smooth edges. Odd shaped parts reproduced faithfully from sample or sketch.

Special equipment and 72 years of experience assure satisfaction.

The Torrington Company
SPECIALTY DEP'T.
Torrington, Conn., U.S.A.

▲ Mention Item **NED-4696** when writing ▲

FLUORESCENT FIXTURE



Constructed with non-metallic composition housing and reflector, this industrial fluorescent lighting unit uses minimum of critical materials. Knockouts are provided in housing at convenient intervals for easy wiring. Starters may be replaced without removing lamps. Ballasts and starters are mounted in housing, permitting reflector to be removed easily for cleaning and servicing.

Reflecting surface is of Klasium white, tough bonded white enamel. It is claimed not to discolor and provides high reflecting surface. Other models are available with metal housing and non-metallic reflectors which may be used individually or in continuous runs. Made by **Lighting Products, Inc.**, 1225 Deerfield Rd., Highland Park, Ill.

▲ Mention Item **NED-4697** when writing ▲

HYDRAULIC LIFT

Lifting pallets and tiering them can be accomplished by this Lifter No. 379. Unit is of electric hydraulic type and lifting is done by means of ram and double lifting chain.

It is powered by 3-horsepower motor that operates pump which provides pressure for lifting ram. Capacity lift is 5000 pounds and lifting speed is 15 feet per minute. Control is by gravity through hydraulic control valve. Limit stops are provided to prevent over travel. Cable control is attached to side of machine to allow quick action from many points.

Height of unit extended is 8 feet, 5 inches. Forks are 28 inches long and 16 inches wide. Front width of machine is 30 inches. Front wheel diameter is 10 inches. Made by **Service Caster & Truck Co.**, 454 Somerville Ave., Somerville, Mass.

▲ Mention Item **NED-4698** when writing ▲

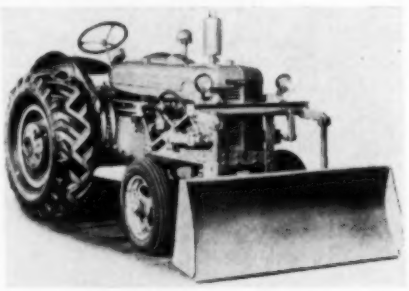
FLOODLIGHT

Featuring unique combination of socket-housing and reflector die-formed in one piece, this floodlight is made entirely of steel. Unit utilizes 200-watt bulb and provides wide beam which can be pointed in any desired direction by means of two-jointed shaft upon which unit rests.

Floodlight, known as type L-66, was designed to provide inexpensive means of outdoor illumination. It is particularly adapted to such present-day urgencies as dock, platform and airport lighting, and is useful for any other outdoor areas needing light for either protection against sabotage or speeding up night work. Made by **General Electric Co.**, Schenectady, N. Y.

▲ Mention Item **NED-4699** when writing ▲

HYDRAULIC BULLDOZER



Developed for use on light wheeled tractors, this hydraulic bulldozer model 282 can be used for finish-up work around camps and airports. It does same kind of work as larger units but on smaller scale. Machine levels, grades, backfills, spreads, excavates and removes snow. It travels at high speed and no trailer is needed.

Blade is lifted and lowered by dual hydraulic cylinders. It makes 6-inch deep cut. Moldboard can be raised as high as 12½ inches. Flexibility of unit makes it adaptable for use in mines, for mucking and for conveyor feeding. It may also be used in open pit mines and quarry floors for clean-up and shovel-feeding work.

In general industry, bulldozer may be used for building roads, handling foundry sand, spreading waste, in parking areas, and for handling solid fuel cinders. Made by **Baker Mfg. Co.**, 501 Stanford Ave., Springfield, Ill.

▲ Mention Item **NED-4700** when writing ▲

WHEN THE BIG TEST COMES

these nuts hold tight

There are more Elastic Stop Nuts on American airplanes, tanks, and other war equipment, than all other lock nuts combined.

WITH THE RED LOCKING COLLAR... SYMBOL OF SECURITY

ELASTIC STOP NUT CORPORATION
2346 VAUXHALL ROAD • UNION, NEW JERSEY

Elastic Stop SELF-LOCKING NUTS AND AIRCRAFT FITTINGS

HELP AMERICA KEEP 'EM FLYING

» Catalog will be sent on request
. . . and nuts for testing are readily available.

▲ Mention Item **NED-4701** when writing ▲

Fluid Drives

for Industrial, Marine and Automotive Use

This giant wind turbine, a major part of the largest aero-electric power generating unit ever built, is symbolic of the American resourcefulness and inventive genius that will lead the Democracies to certain Victory. The giant turbine is but one of many new products with American Blower Fluid Drive. Trucks, conveyors, drill rigs, Diesel motorships, pumps and fans are but a few practical applications. If you are looking to the future, plan to include Fluid Drive in your new and improved products.

AMERICAN BLOWER
HYDRAULIC COUPLING DIVISION
DETROIT, MICHIGAN
Division of American Radiator and "Standard" Sanitary Corporation

▲ Mention Item **NED-4702** when writing ▲

MOTORS *Tailored* To Fit Your Needs

MANY times a motor with standard windings is not the best motor for the job. Or a change in frame design or size means a better application to your product.

Peerless is equipped to handle large or small orders of any special design that will give you maximum motor efficiency, trouble-free operation and minimum upkeep. Send us your motor problems. 50 years of building motors have given Peerless engineers experience in meeting any motor problem.

THE *Peerless* ELECTRIC COMPANY
WARREN, OHIO

▲ Mention Item **NED-4703** when writing ▲

THE war-enforced necessity of trying out new materials and new methods has stimulated engineers everywhere and brought about a new speed in technological progress. With the aid of its suppliers and customers, Formica has participated in this progress and has recently been able to announce several new developments:

ARC-RESISTING INSULATION

Research in synthetic varnishes has made available materials which have enabled Formica to produce an electrical insulation with far greater arc resistance than was ever available in laminated insulation heretofore. It is made in paper, cloth and glass base. The Fiberglas grade shows ten times the arc resistance ever available in such material heretofore.

FLEXIBLE PLASTIC NAME PLATES

The necessity of finding new materials to replace metal brought about the development of a thin, pliable plastic sheet, into which printed material can be introduced, which can be attached to curved surfaces and can be safely riveted without danger of shattering. Material is stable in color, unaffected by grease or solvents.

GLASS CLOTH BASE

Scarcity of ceramics created a big demand for an insulating material with a low power factor, and one of the answers proved to be a laminated sheet made of glass cloth impregnated with phenolic resins and cured under heat and pressure. The material also has exceptional stability of dimensions under variations in humidity.

PREGWOOD REPLACES METAL

By impregnating wood with phenolic resins and curing it under heat and pressure a material of mechanical strength and stability of dimensions, weighing half as much as aluminum, has been made available, where lightness and strength are paramount.

FORMICA

The Formica Insulation Company
4625 Spring Grove Avenue
Cincinnati, Ohio

▲ Mention Item NED-4704 when writing ▲

2 IMPORTANT SAFEGUARDS

—combined!

•

PULMOSAN EYESHIELD RESPIRATORS

Protect Eyes and Face, as well as Lungs

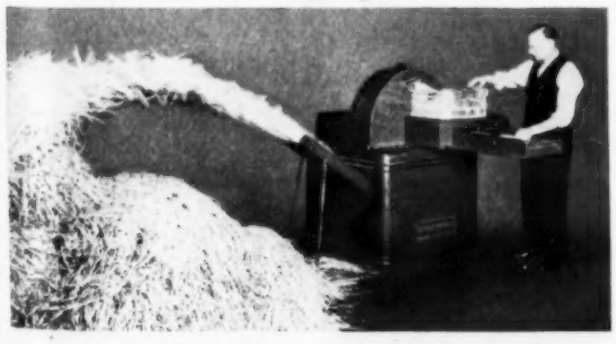
Pulmosan Eyeshield Respirators provide double protection where breathing hazards are accompanied by eye hazards of particles, splashes, sparks or sprays. A sturdy Plastecele Eyeshield, weighing only ½ ounce is fastened over the respirator by headband snaps. Eyeshield is easily removed or replaced as needed. Provides snug, comfortable face contact and full-vision protection. Non-fogging, non-flammable. Can not twist or warp. Available in many Respirator models for dusts, fumes, vapors and spray mists. Write for detailed literature.

PULMOSAN SAFETY EQUIP. CORPORATION

Dept. NED, 176 Johnson St., Brooklyn, N. Y.

▲ Mention Item NED-4705 when writing ▲

Don't BURN Paper CONVERT IT!



AIRFLUFF PAPER SHREDDER MAKES EXCELSIOR OUT OF CONFIDENTIAL PAPERS, BLUEPRINTS OR ANY WASTE PAPER

Here's the machine that destroys paper yet saves it! The AIRFLUFF Paper Excelsior Shredder, easily shreds, separates and fluffs old newspapers, confidential papers, blueprints, magazines, waste paper, corrugated cartons, tissue, Cellophane and waxed paper. Low price, simple to install. Power and maintenance cost less than 2c per 100-pound bale. Absolutely safe—present employees can easily operate. Cuts in widths from ⅛" to ¾". Model No. 14 shreds 600 to 1800 lbs. per hour. Model No. 10 shreds 200 to 800 lbs. per hour. Write today for prices and complete facts about these remarkably simple, sturdy and efficient new AIR-FLUFF Paper Shredders.

WRITE TODAY

MITTS & MERRILL • SAGINAW, MICH.
1000 SOUTH WATER STREET
BUILDERS OF MACHINERY SINCE 1854

▲ Mention Item NED-4706 when writing ▲

PORTABLE CRANE

Available in capacities from 500 to 20,000 pounds, this portable Gantry crane is equipped with eight 12-inch service swivel casters furnished with floor locks. Unit is 12 feet high,

has lift of 9 feet and length of 27 feet, 8 inches.

Trolley hoist is optional and may be supplied to customer if desired. Hoist may also be furnished in fixed position to operate on trolley.

Unit is not restricted in its movement by tracks or overhead runways. It may be used on any good floor. It may be built in any reasonable height and may be used as truck after raising load off floor, and also for lifting heavy units onto motor trucks, tables, platforms and freight cars. Made by **Service Caster & Truck Co.**, 454 Somerville Ave., Somerville, Mass.

▲ Mention Item **NED-4707** when writing ▲

CURRENT TRANSFORMER

Developed as an aid to engineers in general testing for both watt and ampere loads on alternating current power circuits, this split core transformer will also operate graphic recording instruments as well as regular indicating instruments. Important feature is that accuracy is practically independent of tightness of closing magnetic core. It is unnecessary to open power circuit to make test.

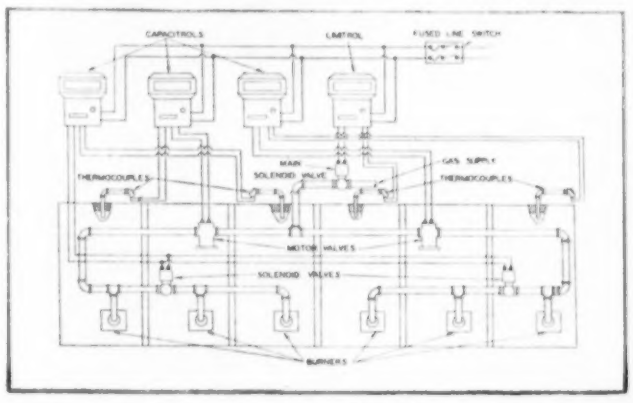
Units are compensated for 10-volt ampere instrument burden, an average for recording instruments. Because of inherent ratio stability, other instrument burdens may be used with slight reduction in accuracy. Other primary current ranges, up to 1000 amperes instrument burden compensation, as well as furnishing of ratio and phase angle curves are available on special order.

For maximum accuracy, transformers should be ordered compensated for their proper instrument burden. Made by **R. B. Annis Co.**, 1101 N. Delaware St., Indianapolis, Ind.

▲ Mention Item **NED-4708** when writing ▲

TEMPERATURE CONTROL

Designed to maintain even heat throughout multiple-burner furnace or oven regardless of heat loss, this temperature control system also provides protection against excessive tempera-



ture in event of thermocouple break. Illustration shows application adapted to furnace with doors at both ends, while modification of this burner and instrument would provide similar control on equipment with one door.

To replace heat lost at doors, burners are controlled so that those at extreme ends burn while those toward center are out. Instrument shown at left actuates two solenoid valves installed ahead of center burners. Two thermocouples at respective ends of furnace actuate two other temperature control instruments, which, in turn, operate two motor valves. These valves are installed so that one controls all burners at one end of furnace and other controls burners at opposite end.

When operating equipment on continuous car-type principle with temperature at start of process differing from temperature at end, control instruments at ends of furnace are set accordingly, while instrument controlling center burners are set at an in-between point.

In either continuous car or batch-type operation, temperature control arrangement provides exact temperature desired at all points within furnace, offsetting heat lost at door or doors. Made by **Wheelco Instrument Co.**, Harrison & Peoria Sts., Chicago, Ill.

▲ Mention Item **NED-4709** when writing ▲

Grind your own CUTTERS

High-Speed Steel Cutter Blanks can be ground to suit many special jobs . . . eliminates lost time waiting for cutter orders to be filled.

• DON'T WAIT FOR CUTTERS ON BACK ORDER . . . ***Use these Centerless Ground Blanks***

SHORT LENGTH BLANKS—Usable in any spring collet, with body diameters ground accurately to −.0005". Convenient for use on small delicate work, easily sharpened to any desired shape or size. Prices per dozen:

1/10" x 1-1/2"	$2.64	5/32" x 1-3/4"	$2.86
1/8" x 1-1/2"	$2.70	3/16" x 1-3/4"	$3.19

Discounts on larger quantities. Order today.

EXTRA LONG BLANKS—For work in deep cavities. By grinding notches in blanks, smaller sizes may be broken off to any desired length. Prices per ½ dozen:

1/10" x 4"	$2.37	1/4" x 4"	$3.96
1/8" x 4"	$2.64	5/16" x 4"	$4.95
5/32" x 4"	$3.30	3/8" x 4"	$5.67
3/16" x 4"	$3.52	1/2" x 4"	$7.59

Discounts on larger quantities. Order today.

FREE..Catalog containing other Gorton accessories. Ask for 1317-D.

GEORGE GORTON MACHINE CO.
1103 13TH STREET, RACINE, WISCONSIN, U. S. A.

▲ Mention Item NED-4710 when writing ▲

PAGE SHAPED WIRE
SOLVES MANY JOB PROBLEMS IN MANY FIELDS

• Wire has always been the business of PAGE.

And the years have brought us exceptional ability to work for the economical and practical use of SHAPED WIRE—work out such jobs as may be a problem to you right now.

That cooperation is yours for the asking—the wide range of shapes and sizes suggesting that a PAGE standard shape would fit your work.

However, bear in mind that PAGE mills are at capacity—almost the entire production having a direct bearing on needs of the armed forces. That limits the possibilities of delivery until the day of Victory.

PAGE STEEL AND WIRE DIVISION
Monessen, Pa., Atlanta, Chicago, New York, Pittsburgh, San Francisco

In Business for Your Safety

ACCO
AMERICAN CHAIN & CABLE COMPANY, Inc.
BRIDGEPORT • CONNECTICUT

▲ Mention Item NED-4711 when writing ▲

A 10-LB. BOX

of Circle "C" Tool Bits

...WILL TELL YOU WHY,
in shop after shop,
CIRCLE "C" SUPER HIGH-SPEED STEEL
licks the tough jobs.

Firth-Sterling
STEEL COMPANY
McKEESPORT, PA. • BRANCHES IN PRINCIPAL CITIES

▲ Mention Item NED-4712 when writing ▲

ELIMINATES SOME COSTLY TOOLS

Case History No. 4

The adapters are clamped on a "V" block which in turn is mounted on a rotating table on a milling machine. A slotting tool ground to the exact dimension specified is fastened to the clapper box tool holder . . Each spline is cut in a few minutes—after rotating to a new position—the operation is repeated until all of the splines are cut accurately, dimensioned and equally spaced . . . Broaching—the only alternative—would have involved the expense of a series of broaches and broaching operations, because the splines stop at the shoulder of the adapter . . . . Use of the SLOTMASTER required no tooling expense and only one set-up.

Thumbnail illustrates set-up

SLOTMASTER can be used on milling machines and provides double duty facilities at a minimum cost. It requires but little time to change-over from one head to the other . . The stroke of the ram is adjustable from 0 to 4" . . the speeds range from 50 to 250 s.p.m. . . The tool holder of the clapper box type can be turned in any position . . All of the working parts are of tool steel heat treated and ground to close tolerances . . SLOTMASTER comes complete with pulleys, motor, belt and mounting adaptable to round over-arm or flat-on-round overarm milling machines.

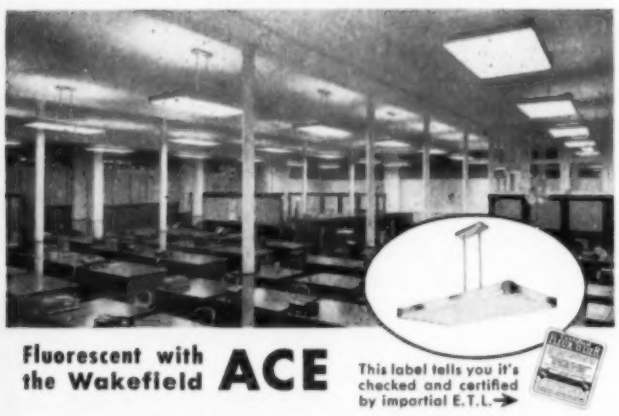
Send for 4-page catalog and give the specifications of the milling machines that you wish to equip. Immediate deliveries on high priorities.

EXPERIMENTAL TOOL & DIE CO.
12611 Greiner
Detroit, Mich.

Conventional set-up on round over-arm milling machine.

▲ Mention Item **NED-4713** when writing ▲

How to speed WAR WORK —OFFICE or DRAFTING



Fluorescent with the Wakefield ACE

This label tells you it's checked and certified by impartial E.T.L.→

The ACE is "tops" for office and drafting room. Puts 90% of its light down on desk or board to help eyes and hands work faster, more accurately, with less strain. And it's an "ace" for office space with poor ceilings, too. Trim and functional in design. Maintenance cost is low. Easy to clean and relamp. And it's a Certified FLEUR-O-LIER, checked and certified by Electrical Testing Laboratories. Write for details.

Fluorescent lighting now requires a specified priority rating. Our experience on this is at your service.

THE F. W. WAKEFIELD BRASS CO.
92 NEWWOOD PARK VERMILION, OHIO

▲ Mention Item **NED-4714** when writing ▲

Rocker Dump Trailers

For rapid handling of loose bulk materials, small parts, waste, etc. The model shown is built in capacities from 10 cu. ft. for hand haul to 36 cu. ft. for power haul in train. Available in other capacities and variations of same basic design. Where possible flat steel rim wheels are generally specified in place of molded-on rubber tires. Timken Bearing Equipped. Also Easton Rocker Dump Cars for track haul. Consult EASTON on your material handling problems.

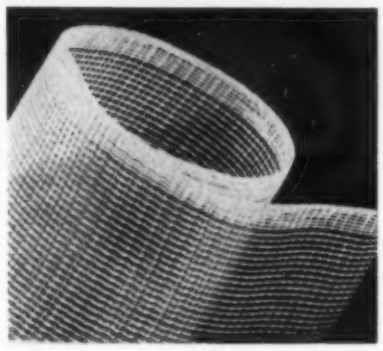
EASTON CAR & CONSTRUCTION CO., Easton, Pa.

EASTON

▲ Mention Item **NED-4715** when writing ▲

NEW Processes AND Materials

SAFETY WINDOW CLOTH



Made of 10-mesh cotton cloth covered with tough, transparent, plastic film, this Ceco safety cloth was especially designed for protective uses. They are to provide either permanent or emergency flexible window for buildings of any kind, without use of priority metals and materials; and as protection upon inside of glass windows, to reduce danger to persons or property, should window be shattered by bombing.

Cloth is flexible and easy to handle. It can be cut to fit with scissors and tacked up on wooden sash. It can also be applied to metal sash. Product was tested for weathering and is said to have resisted penetration by column of water 29.6 centimeters high. It is available only in 100 yard rolls, 28 inches wide, totalling 702 square feet at price of $84 f.o.b. New York. Made by **Colloid Equipment Co.**, 48 Church St., New York City.

▲ Mention Item **NED-4716** when writing ▲

VITAMINS FOR WORKERS

Effective in cutting down number of absentee war workers in industrial plants because of illness, these vitamin capsules are said to conform to highest medical standards of purity. They are hermetically sealed and contain daily requirements of all known vitamins necessary to maintain normal health.

Capsules are recommended by manufacturer for industrial use. Results achieved are declared to be eminently satisfactory, having in some instances reduced volume of absences to record low.

In addition to increasing illness, it is an established fact that vitamin deficiency curtails worker efficiency. During four month test period, vitamins given in industrial organization reduced illness and decreased percentage of rejects. Capsules are packaged in bottles of 100 or in bulk containers with larger quantities. Made by **Cincinnati Vitamin Co.**, 1501 Madison Rd., Cincinnati, O.

▲ Mention Item **NED-4717** when writing ▲

CORROSION PREVENTIVE

Having properties of completely removing perspiration, water, oil and dirt from steel surfaces, this Polar K oil is said to be superior to alcohol for dehydrating and cleaning steel surfaces, bearings or similar parts which have become wet or which retain film of grinding emulsion.

Product is said to instantly displace and absorb water and to leave thin film of lubricant and rust preventive over surface. It is especially applicable for protecting during storage, water side of steam turbines, water pumps, meters and steel parts which may have been exposed to rain, immersion in sea water or damp storage.

Material has also been found successful for spraying inside of diesel and gasoline engine cylinder walls which have accumulated film of condensed moisture as result of damp atmosphere. It can also be used for flushing crankcases to remove sludge, moisture and acid salts. Made by **Curran Corp.**, Dowling Bldg., Malden, Mass.

▲ Mention Item **NED-4718** when writing ▲

CORROSION PROOF METHOD

Removing rust, blemishes, burns and marks of corrosion Corrosol No. 26 is used in cold solution. It leaves metal clean and in passive condition and does not act upon metal itself. Therefore, it does not harm cutting edge of tools.

Because solution does not act on metal, it does not encourage corrosion after metal has been cleaned. It is harmless to workman applying it and is non-inflammable. Made by **International Rustproof Corp.**, 12507-15 Plover Ave., Cleveland, O.

▲ Mention Item **NED-4719** when writing ▲

A Good Soldier on the *Production Front*

This new high-speed Rotary Productimeter is a further addition to the popular "H" series of Durant counters. From its streamlined appearance to its rugged construction features, the "HDW" meets the ever-increasing demand for high speed rotary counters, moderately priced. It's designed and built for heavy duty at speeds up to 2000 counts per minute . . . and is especially adapted for quick starting and stopping applications.

Double worm drive, oil-less bearings, light-weight, strong plastic wheels, hardened steel parts . . . assure smooth action and long, dependable performance.

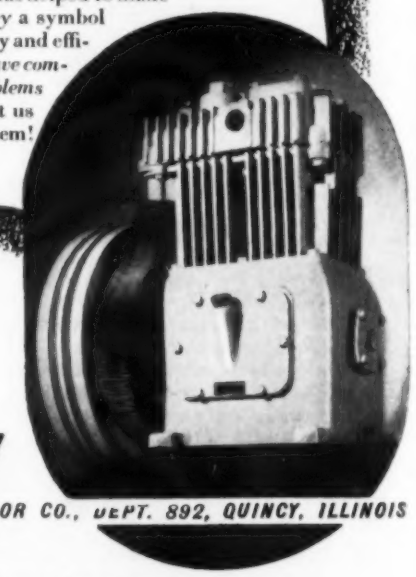
SEND FOR BULLETIN NO. 100 ON STANDARD PRODUCTIMETERS!

DURANT MANUFACTURING CO.
1922 N. Buffum Street, Milwaukee, Wis. — 178A Eddy Street, Providence, R. I.

▲ Mention Item **NED-4720** when writing ▲

1st IN DESIGN
TOPS IN EFFICIENCY

☆ Quincy was the *first* to design and build an air compressor that combined modern appearance with improved mechanical features. Construction is simpler. Radiation area is increased 12%. Lubrication is more thorough — more positive. The policy of building air compressors *exclusively* has helped to make the name *Quincy* a symbol for dependability and efficiency. *If you have compressed air problems* in your work, let us help you solve them!



Quincy COMPRESSORS

QUINCY COMPRESSOR CO., DEPT. 892, QUINCY, ILLINOIS

▲ Mention Item **NED-4721** when writing ▲

Built by machine tool makers, adopted as standard by over 200 machine builders, never a failure after millions of contacts.

Ask for particulars.

ELECTRICAL MANUFACTURING DIVISION
THE NATIONAL ACME COMPANY
CLEVELAND, OHIO

▲ Mention Item **NED-4722** when writing ▲

SAVE TIME AND MONEY BY ELIMINATING

MAKE SHIFT WORK-BENCHES

specify HALLOWELL SHOP EQUIPMENT

When you buy ready made "Hallowell" Work-Benches, you save the making of drawings, ordering of multifarious sizes of lumber, expensive carpentry and much time. You merely select the style bench you want from 1367 "Hallowell" Combinations. They are easily set up and arranged any way you want. Stay strong and rigid without costly bolting to floor. Tops may be of smooth, high-grade laminated wood, of Masonite, or, if advantageous, of steel. Choice of five leg heights and widths. And deliveries are better than average. Write for complete details—now.

Fig. 928—Drawer is extra. "Hallowell" Work-Bench with top of smooth laminated wood. Pat'd and Pat's Pending.

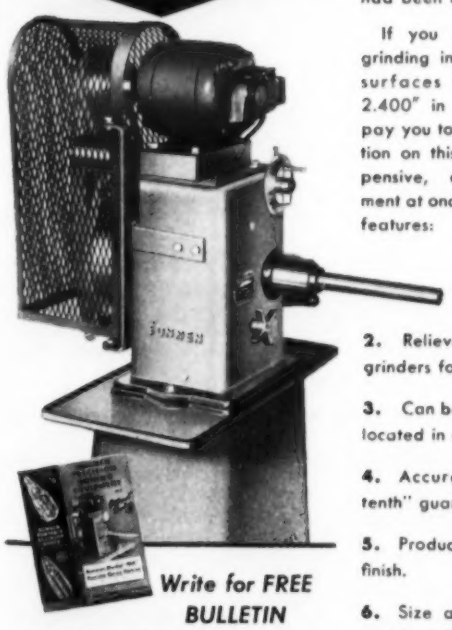
STANDARD PRESSED STEEL CO.
JENKINTOWN, PENNA. BOX 581
—BRANCHES—
BOSTON • DETROIT • INDIANAPOLIS • CHICAGO • ST. LOUIS • SAN FRANCISCO

▲ Mention Item NED-4723 when writing ▲

Average Number of Pieces from Header Die Increased from 25,000 to 225,000!
That's MORE Production

SUNNEN Precision HONING MACHINE

An increase of nearly 1000% in the number of pieces from a die after it had been Sunnen honed!



If you are reaming or grinding internal cylindrical surfaces from .185" to 2.400" in diameter, it will pay you to get full information on this practical, inexpensive, accurate equipment at once. Consider these features:

1. Does not require skilled labor.
2. Relieves big internal grinders for other jobs.
3. Can be set up and work located in one minute.
4. Accuracy within "one tenth" guaranteed.
5. Produces super-smooth finish.
6. Size adjustment can be made with machine in motion.
7. Corrects errors of out-of-roundness or taper caused by previous operations.

Write for FREE BULLETIN
— giving complete information and showing many examples of use. Or, if you prefer, we'll have a Sales Engineer call and demonstrate this equipment in your plant on your job.

Sunnen Products Co.
7931 Manchester Avenue,
St. Louis, Missouri
Canadian Factory—Chatham, Ont.

SUNNEN

Aluminum Aircraft Link "produces high finish without bell-mouthing."

Aviation Hydraulic Cylinder made of Aluminum-Alloy. Improves the quality of the bearing surface. An extremely smooth surface-finish is secured.

Drill Jig Bushing "Increases sales appeal of product."

Saved time in producing smooth, accurate finish on this bronze remote control valve body.

Airplane Engine Parts accurately honed to a super-smooth finish.

Diesel Engine Fuel Injector Cylinder "So accurate that a piston can be fit within .00005 inch."

▲ Mention Item NED-4724 when writing ▲

New Processes & Materials

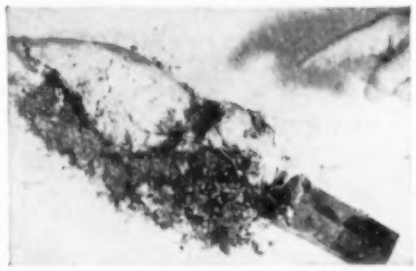
ROLLED METAL TRIM

Intended for non-drip sink edgings, this Chrom-edge line of rolled metal trims is furnished in size R-171 for light weight wall and standard gage materials, and No. R-171-A for ⅛-inch coverings. Strip also finds application for trimming outside wall corners and other types of installations.

Sections can be fitted around corners and curves readily. It is available only in 12 ft. lengths from stock. Rolled edge fits snugly over linoleum or other table-top type covering materials, sealing against leakage or entrance of dirt. Made by **The B & T Floor Co.**, Columbus, O.

▲ Mention Item NED-4725 when writing ▲

FIRE BOMB EXTINGUISHER



Composed entirely of refractory materials, this No. 555 All-Out incendiary bomb extinguisher is in form of harmless, non-poisonous fine powder. Material also can be used for extinguishing fires which occur in industrial plants producing war materials of magnesium, thermite, aluminum and similar metals.

Product is packed in 10-pound paper bags for home use and in 400-pound barrels for institutions and factories. Bag simply dropped on fire will either break or burn thus freeing powder to spread over fire. Material retains its entity until temperatures of 2500-degrees are reached, when it fuses into lava-like form to blanket and smother bomb. It will not harden and will keep its strength no matter how long it is exposed to air, moisture, cold, sun heat, brine, salt air or chemical fumes. Made by **United Laboratories, Inc.**, 16801 Euclid Ave., Cleveland, O.

▲ Mention Item NED-4726 when writing ▲

SHEET METAL SUBSTITUTE

Conforming to specifications of governmental departments, including armed forces, this Cheney Protected metal substitute for galvanized iron and sheet copper is available in sheet form. It can be sheared, bent in hand operated brake, bent on dies and run through lock forming machines.

Material contains neither coal tar nor asphalt and finished coating is tough, elastic, rubber-like material which will not run at 320 degrees Fahr. or crack at freezing temperatures. It will stand up under baking rays of sun and can be used when formed into ducts for hot air heat.

Because no coal tars or asphalts are used in coating, bleeding is eliminated which allows painting of any color direct to sheet without using shellac or special primers. Made by **Cheney Metal Products Co.**, 35 Oxford St., Trenton, N. J.

▲ Mention Item NED-4727 when writing ▲

FLAME-RESISTANT VARNISH

Designated as R-878, this flame-resistant insulating varnish is recommended for class B high temperature insulation. In addition to having good heat resisting qualities, it has all characteristics of high grade insulating varnishes. Product will not support combustion and it will not melt or resoften under operating temperatures. Varnish is said to be mechanically strong and it dries all way through when applied to electrical apparatus. Manufacturer suggests that it is definitely suited as protecting and insulating medium in windings of large electrical units as pictured in illustration. Made by **Sterling Varnish Co.**, 163 Ohio River Blvd., Haysville, Pa.

▲ Mention Item NED-4728 when writing ▲

ONE man lubricates more bearings than TEN men . . . *and does it better!*

Because with Farval, all bearings are lubricated in less than one minute from one safe central point.

Farval does a better job because each bearing receives the exact amount of lubricant it requires and the isolated or inaccessible bearing is not overlooked.

Farval increases production by eliminating all outage time for bearing repairs which always result from hit-or-miss methods of hand lubrication.

Give your oilers the tools and they will give you a better job. Install Farval!

The Farval Corporation, 3283 East 80th St., Cleveland, Ohio.

Affiliate of The Cleveland Worm & Gear Company, Automotive and Industrial Worm Gearing.

In Canada: PEACOCK BROTHERS LIMITED

FARVAL CENTRALIZED SYSTEMS OF LUBRICATION

▲ Mention Item NED-4729 when writing ▲

Around the Clock—the Months —the Years!

You no doubt have been impressed by this frequent comment from owners of Cleveland Worm Gear Speed Reducers—"we have no shutdowns."

Though many of these customers installed their first Cleveland Units 15 to 20 years ago on applications subject to heavy shock loads, they have had no need for replacement or maintenance at any time.

Today, *minutes* are the unit of emergency production. Install Clevelands and keep *your* machines operating continuously through days—months—years.

The Cleveland Worm & Gear Company, 3283 East 80th Street, Cleveland, Ohio.

Affiliate: The Farval Corporation, Cleveland, Centralized Systems of Lubrication.

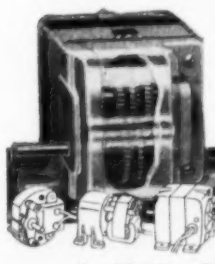
In Canada: PEACOCK BROTHERS LIMITED

CLEVELAND WORM GEAR Speed Reducers

▲ Mention Item NED-4730 when writing ▲

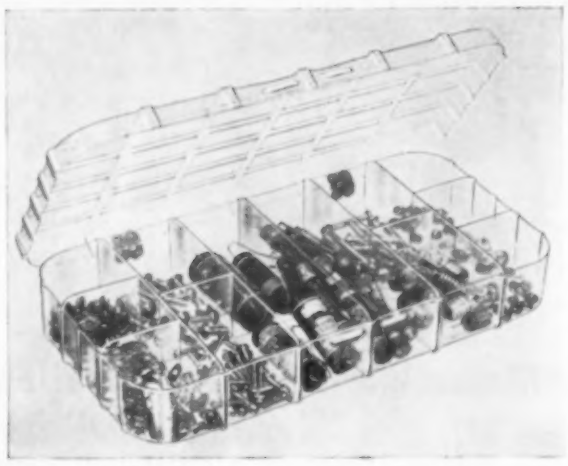
A complete line of dependable "Flea Power" and small Fractional Horsepower A.C. and D.C. Motors. Direct drive or back geared—almost any speed, torque and voltage. Skeleton or cased models factory-adapted or specially designed to exactly meet your requirements. Hundreds of thousands in use. Prompt deliveries, one or a million on high priority orders.

Write for Motor Catalog or send specifications for our expert recommendation.



SPEEDWAY MANUFACTURING CO.
1868 S. 52nd AVENUE CICERO, ILLINOIS

▲ Mention Item NED-4731 when writing ▲



ASSEMBLY AND REPAIRS
—at War Time Speed

Bill Dewitt Transparent containers have taken an important place in war production for assembly and repair work. The illustration shows one of these compact boxes with a variety of small parts for radio repairs. Made of feather-light Pyra-Shell, they are extremely light in weight but they are so sturdy and strong they stand up under constant use and hard wear.

The box shown here is only one of many styles awaiting your selection. Surely we have just the style and size to meet your production needs. If not, a special style can be designed for your requirements. Write us today for a booklet that illustrates and describes standard styles and sizes.

Address—Utility Box Department D

SHOE FORM CO. Inc., AUBURN, N.Y.

▲ Mention Item NED-4736 when writing ▲

Look to CENTURY
For Correctly Protected Electric Motors for Hazardous Conditions

Splashing Liquids... Falling Solids

Plant wash down—below work line protection against falling chips—splashing cutting oil. You do not need an extra dog house to protect the motor.

Use Century Splash Proof Motors

Abnormal Atmospheres... Acid and Alkali Fumes... Abrasive Dusts

Air saturated with oil or animal fats—current conducting or corroding dust—organic and inorganic acids—alkalies, etc.

Use Century Totally Enclosed Fan Cooled Motors

Gasoline and Gases... Explosives

Protection for atmospheres containing—explosive quantities of gasoline, petroleum naphtha, alcohols, acetone, lacquer solvent vapors and natural gases (Class 1 Group D) or explosive grain dust (Class 2 Group G).

Use Century Explosion Proof Motors

● If you are engaged in war work of any kind, get the facts on Century protected motors. Call in a Century Motor Specialist — there's one near you.

CENTURY ELECTRIC CO., 1806 Pine St., St. Louis, Mo.
Offices and Stock Points in Principal Cities

Century MOTORS 245

One of the Largest Exclusive Motor and Generator Manufacturers in the World

▲ Mention Item NED-4737 when writing ▲

You Can Handle Materials
EASIER·FASTER·CHEAPER

High-pressure production requirements make minutes more precious than ever! That's why more and more plants, factories and warehouses are acquiring EWC trailers for efficient handling of materials.

Illustration shows our caster type trailer with automatic coupler; hook or chain type couplers available.

Many different types and capacities for every conceivable need. Write today for full data. Address Dept. N.

EWC TRAILERS

ELECTRIC WHEEL CO., Quincy, Ill.

▲ Mention Item NED-4738 when writing ▲

New Processes & Materials

CUTTING OIL

Increased production is claimed possible through use of Cut-Aid industrial cutting oil. This fluid was developed by chemically breaking down various animal oils, synthetically reproducing best properties of different types and blending synthetics with mineral oil. Among claims for Cut-Aid are increased penetration, cooling power, film strength and wetting power. It may be used alone or in combination with other cutting oils.

In recent test, machine was producing plume of smoke during cutting operation at 100 feet per minute. Adding this new cutting oil to lubricant already in use permitted operation at 300 feet per minute without trace of smoke. In another operation tool life was extended from 3 hours between regrinds to 11 hours in forming aluminum on Brown & Sharpe automatic, reducing round stock from ¾ inch to ¼ inch. Finish was also improved.

Oil has been found particularly effective for machining operations on aluminum, magnesium and nonferrous alloys, producing better finish at greatly increased production rates. Made by **Gulf Oil Corp.**, Gulf Bldg., Pittsburgh, Pa.

▲ Mention Item **NED-4739** when writing ▲

FIRE FIGHTING COMPOUND

Fires of gasoline, benzine, naphtha, tar, grease, oil, electric, acetylene gas, chimney and wood origin can be brought under control and extinguished by means of Whippet, extinguishing powder. It acts without water damage.

In recent tests, material is said to have put out fire caused by incendiary bomb in few seconds. It can be used with perfect safety. No equipment is necessary. It is non-poisonous and contains no noxious gases. Material is packed in 2½ pound cans for home use and in 10 and 40 pound cans for industrial use. Made by **The Halco Chemical Corp.**, 551 Fifth Ave., New York City.

▲ Mention Item **NED-4740** when writing ▲

PAINT REMOVER

Featuring non-inflammability quality, this L-595 paint remover is said to be wax-free and to require no after cleaning with additional inflammable solvents. Other than proper ventilation, no special or elaborate precautions are necessary when using this stripper.

Product will not injure polished aluminum alloy, anodized aluminum alloy, Alclad, polished steel, cadmium plated steel, stainless steel, polished copper or magnesium alloy, and with exception of rayon, it will not injure fabrics.

Material has rapid lifting action and starts almost immediately upon application. Varnish, lacquer and some enamels require maximum time of five minutes for complete removal, while most obdurate baked enamel requires not more than 15 minutes.

Manufacturer claims that remover can be used by inexperienced workmen under almost any circumstances without fear of explosion, and that its rapid swelling action speeds production. Made by **Turco Products, Inc.**, Dept. 25, 6135 S. Central Ave., Los Angeles, Calif.

▲ Mention Item **NED-4741** when writing ▲

TACK RAG

For cleaning dust and over-spray prior to painting, this O-U-Tack rag eliminates use of solvents. It is flexible and does not dry out if placed in storage. It is claimed to be immune to spontaneous combustion.

If user desires more tackiness, it is simply placed near heat. If less tackiness is required, rag is hung in open air. Product is said to be particularly applicable when preparing aircraft skins for synthetic enamel because it completely removes metal dust and other minute particles developed in drilling and riveting.

Full size samples are offered free by the manufacturer. Made by **The Robinson Specialty Mfg. Co.**, 816 West Fifth St., Los Angeles, Calif.

▲ Mention Item **NED-4742** when writing ▲

SAVES LABOR

You can eliminate many hours from your Payroll of highly-paid Machinist's time if you will let these men use the JACKSON TIME-SAVING Vise, for it cuts out the time they are forced to waste hunting for Bolts, Clamps, Angle Plates, Parallel Strips, etc. when "rigging up" work on the Drill Press, Miller, etc. Furthermore, you can eliminate the simultaneous loss of output and overhead expense incidental to having your productive machine idle during the "rigging up" process. The four-side turret jaw and supplementary jaws enable the vise to hold instantly the thousand and one shapes that arise in a Machine Shop. Send for Bulletin No. 23-D.

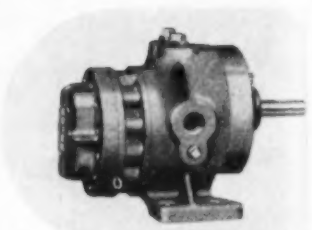
JACKSON TIME-SAVING VISE

BROWN ENGINEERING CO. 129 N. THIRD ST. READING, PA.

▲ Mention Item NED-4743 when writing ▲

Custom-Built
PERFORMANCE
FROM STANDARD MODELS

Pick your pump from the Roper line which offers hundreds of installation possibilities. Whether you require pumps for the operation of hydraulic mechanisms, lubricating systems or general transfer work, there are standard model Ropers that will do the job. From the wide variety of Roper models with nearly every conceivable capacity, pressure, speed, drive, mounting and piping arrangement it is easy to select pumps that are practically "made-to-order" for your needs.



HYDRAULICALLY BALANCED

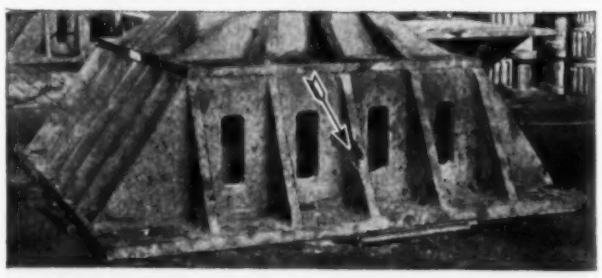
FREE! Valuable Book It contains a summary and a digest of solid information concerning pumps and pumping problems.

Ask for Catalog 949

GEO. D. ROPER CORP., ROCKFORD, ILL.

ROPER *Rotary* PUMPS

▲ Mention Item NED-4744 when writing ▲



Reduce Foundry Rejects

. . . . by truing up faulty contours of sound castings with Smooth-On No. 4. This long-tested foundry cement hardens into metallic iron, matches the color and lustre of the surrounding metal, and can be filed and machined.

Sold in 3 grades, for iron and steel castings, in 1-lb. and larger cans and kegs. For your protection, insist on Smooth-On, used by leading foundries since 1895.

SMOOTH-ON CEMENTS
STOPS LEAKS
SMOOTH-ON No. 1
CEMENTS IRON
for the Motor Car and Boat, Home, Factory and Power Plant

FREE

40-Page Handbook with full description of Smooth-On Foundry Cements and their use; also helpful suggestions for repairs to equipment all over the plant. Also generous samples of Smooth-On Foundry Cements on request.

Write for this Repair Handbook

SMOOTH-ON MFG. CO., Dept. 10
570 Communipaw Ave., Jersey City, N. J.

Do it with SMOOTH-ON

▲ Mention Item NED-4745 when writing ▲

★ In the processing of your products, there is handling to be done. Here's where you can save time and money. Call in an American MonoRail Engineer. He can show you definite savings in any of your materials handling operations. That's his business — American MonoRail equipment is available for manual, electric or automatic operation. No job too small—none too large, and definitely suited to your individual need. No interruption to your production during installation. Stop wasting time—call in an American MonoRail Engineer today.

WRITE FOR Blue Book illustrating hundreds of MonoRail installations.

THE AMERICAN MONORAIL CO.
13116 Athens Ave., Cleveland, O.

▲ Mention Item NED-4746 when writing ▲

PRODUCTION SAFETY!
PRODUCTION SPEED!

THE THIRD HAND— FOR SAFETY'S SAKE!

"LINEMASTER"
FOOT TREADLE SWITCH

A STURDY SNAP-ACTION SWITCH, MOUNTED IN A RUGGED, CAST IRON CASING

Rated at: 20 AMPS. ON 250 VOLTS MECHANISM DOUBLE POLE

SIZE: 7" long, 4" wide, 3¼" high. Wt: 5¼ lbs.
FINISH: Light gray enamel.

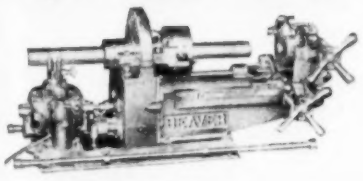
The "Linemaster" is fully enclosed, foolproof, and hooded for protection against dirt and tampering. Its unique design will suggest many shop and factory uses. Two models: No. 4141-D—press to start, press to stop. No. 4141-S—hold down for closed circuit.

LIST PRICES: Model 4141-S.....$8.50 each; Model 4141-D.....7.50 each

MANUFACTURED BY
SIMONDS MACHINE CO., INC.
SOUTHBRIDGE, MASS., U. S. A.

▲ Mention Item NED-4747 when writing ▲

The A-B-C of Pipe and Bolt Machines!

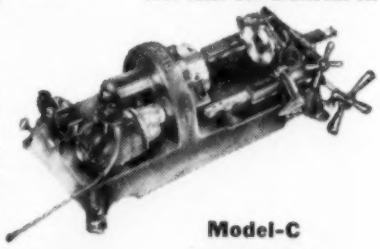


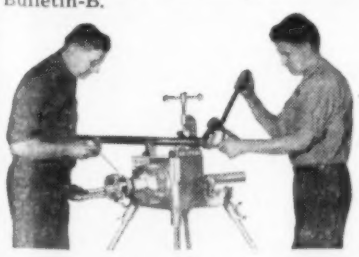
Model-A

A high-speed heavy-duty deluxe Pipe and Bolt Machine. Range ⅛ to 2-inch—up to 12-inch with geared tools and drive shaft. Bolts, ¼ to 2-inch. Wt. 415 lbs. Ask for Bulletin-A.

Model-B

A compact utility Pipe and Bolt Machine combining many features of Model-A with the easy portability of Model-C. Range ⅛ to 2-inch—up to 8-inch with drive shaft and geared tools. Bolts up to 1½-inch. Weight 280 lbs. Ask for Bulletin-B.





Model-C

A sturdy little Power Unit

Converts Hand Pipe Tools into Power Tools from ⅛ to 8-inches. Threads 8-inch in 6 minutes. Threads bolts up to 1½-inch. Equipped with automatic chuck wrench ejector—a safety feature. Two men can use it at the same time without interference. Easily portable—weighs about 150 lbs. Write for Bulletin-C.

BEAVER PIPE TOOLS
942 HENRY AVE. WARREN, OHIO

▲ Mention Item NED-4748 when writing ▲

New Processes & Materials

PROTECTIVE COATING

Applied to practically any ferrous or nonferrous metal products, Transcote affords transparent protective coating which will resist action of strong alkalies or mild acids. It is being used for corrosion prevention in manufacture of steel shell and other war materiel.

Durable protective film is formed quickly, as finish air dries in less than 10 minutes. It may be applied by brush or spray. If dipping is employed, finish is thinned. Coverage is approximately 500 to 600 square feet per gallon. Made by **Trautman Chemical Engineering Co.**, 1515 Coit Ave., East Cleveland, O.

▲ Mention Item **NED-4749** when writing ▲

RELUBRICATION SERVICE

Intended to aid in relubrication of millions of aircraft bearings tagged by the Army for low temperature operation, this relubrication service is available to aircraft manufacturers.

Bearings are degreased, washed clean, dried, marked for identification, relubricated with approved low temperature lubricant and packaged for shipment. All work is conducted under Army supervision and in compliance with latest specifications. Service offered by **Pacific Railway Equipment Co.**, Los Angeles, Calif.

▲ Mention Item **NED-4750** when writing ▲

GENERAL PURPOSE PLASTIC

Adaptable to many uses, this Durez 11540 general-purpose phenolic molding compound is said to be useful in production of several war parts.

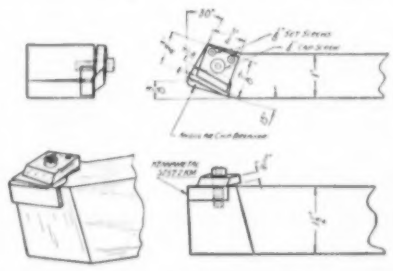
It has slightly higher impact strength and greater resistance than former top-grade general-purpose materials. Plastic is said to deliver excellent surface finish.

Material can be used for field communication equipment which must withstand hard usage, as well as for instrument cases, housings, and parts now being molded of materials with less impact strength. Made by **Durez Plastics & Chemicals, Inc.**, 1910 Walck Rd., North Tonawanda, N. Y.

▲ Mention Item **NED-4751** when writing ▲

CLAMP-ON TOOL TIPS

By using clamp-on type tool, shops making up their own carbide cutting tools can greatly simplify the job and at same time be assured of strain-free design. Sketch shows simple design which has been found satisfactory in practice.



Tool shank is milled out, care being taken to get as flat a surface under tip as possible, and simple clamp is attached. Conventional chip breaker of angular shelf type is ground into Kennametal tip so that chips will not erode SAE 1045 clamp.

Brazing strains are eliminated and grinding is simplified because only carbide contacts wheel and no steel is present to load up or glaze grinding face. One such shank will serve to mount about four successive tips before it becomes worn beyond use.

As tip is reground, it is moved forward and out under clamp, shims being placed behind it. When tip becomes too small for use in tool, it can frequently be brazed into smaller shank for lighter turning operations. Kennametal made by **McKenna Metals Co.**, 171 Lloyd Ave., Latrobe, Pa.

▲ Mention Item **NED-4752** when writing ▲

HEAT TREATING PROCESS

Applicable to stainless steel; oil, water or air hardening steels with exception of high speed; alloy steels and with certain limitations on low carbon steel, this Silver-Finish hardening process causes no change in surface analysis. No scale is formed and even polished parts retain their finish, looking like unhardened pieces.

Producing same hardness specifications as other methods, this process is claimed to effect savings as it is unnecessary to clean up dies, gages, taps, hobs, stamps, drills or other products. Finish grinding to size is all that is required. There is no discoloration, scale, carburizing or decarburizing. Process developed by **Perfection Tool & Metal Heat Treating Co.**, 1740-58 W. Hubbard St., Chicago, Ill.

▲ Mention Item **NED-4753** when writing ▲

ARE YOU USING THE RIGHT WHEEL *in the right place?*

● No matter what you use grinding wheels for, there's one simple way for you to speed up production, get better grinding results and lower your costs. Make sure you always use the *right* wheel on each job . . . a wheel of exactly the right grade. Such a wheel will do your work in a minimum of time at the lowest possible cost.

CARBORUNDUM ABRASIVE PRODUCTS

THE CARBORUNDUM COMPANY, NIAGARA FALLS, N. Y.
REG. U. S. PAT. OFF.
Sales Offices and Warehouses in New York, Chicago, Philadelphia, Detroit, Cleveland, Boston, Pittsburgh, Cincinnati, Grand Rapids
Carborundum is a registered trade mark of and indicates manufacture by The Carborundum Company.

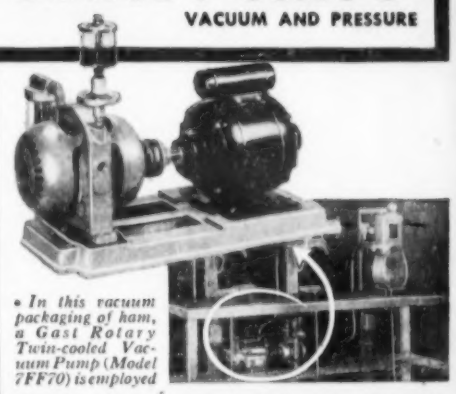
▲ Mention Item NED-4754 when writing ▲

Get GAST Recommendations for Your SPECIAL PUMPS
VACUUM AND PRESSURE

TYPICAL APPLICATIONS
. . . . of Gast Engineered-to-the-job Pumps

VACUUM
Refining lubricating oils • Operating automatic checkson machine tools • Testing instruments • Operating milking machines • Paper feeding, printing-presses.

PRESSURE
Industrial oil burners • Spraying paint or chemicals • Atomization of liquids • Generating cooking gas from liquid fuels—and many hundreds more.



• In this vacuum packaging of ham, a Gast Rotary Twin-cooled Vacuum Pump (Model 7FF70) is employed

BENEFIT BY GAST ENGINEERING EXPERIENCE

● Manufacturers who bring their pump problems to us find Gast engineered-to-the-job pumps step up performance, reduce operating troubles and increase output. The unique Gast Rotary design provides a more efficient, lower cost operating unit, specially, designed for your machine and embodying these features: 1-Smooth, non-pulsating steady flow of air. 2-Forced-Air-Cooling, supplying greater air volume without complicated water systems. 3-Automatic Take-Up, which compensates for wear. 4-Compact design, saving space and weight.

COMPLETE LINE *includes 12 sizes, Gast Rotary Air Pumps, ½ to 23 C.F.M. Vacuum to 28". Pressures up to 30 lbs.*

Send for catalog containing specifications, engineering data and performance tables

GAST ROTARY AIR PUMPS

GAST MFG. CORP.
115 Hinkley St.
Benton Harbor, Mich.

▲ Mention Item NED-4755 when writing ▲

It's the GRINDER that makes the DIFFERENCE

ABOVE: It's the cutting edge that counts. On top is tool ground on an ordinary grinder, the bottom tool was conditioned on an Ex-Cell-O Tool Grinder.

With the widespread use of carbides and other hard materials for cutting in today's strenuous race for production, the proper conditioning of cutting tools is more essential than ever to efficiency and speed. Ex-Cell-O Carbide Tool Grinders are made specifically to do this necessary job of good grinding—their use cuts down grinding time, improves finish, speeds up production, and increases tool life.

EX-CELL-O CORP.
DETROIT, MICH.

TO LEFT: Bench-type grinder, one of six styles of Ex-Cell-O Carbide Tool Grinders.

EX-CELL-O Precision
MACHINES AND TOOLS

▲ Mention Item NED-4756 when writing ▲

For Your Convenience in Obtaining Information on Products, Use Inquiry Blank Enclosed in This Issue.

It's STANDARD for War and Peace

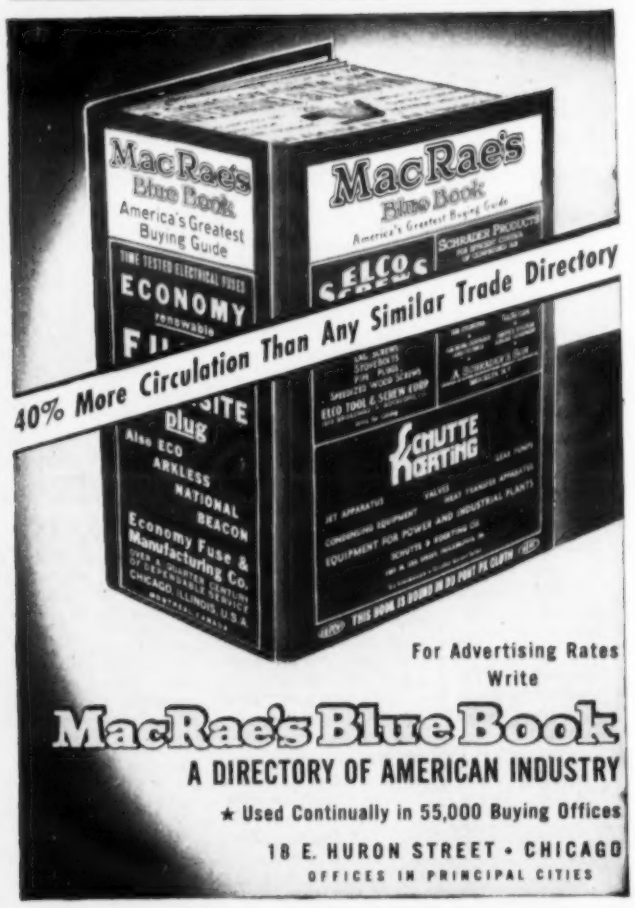
TYPE	H. P.	GRINDING WHEELS
24 FAS	2	12" x 2"
36 FAS	3	14" x 2½"
40 FAS	5	14" x 3"
50 FAS	5	18" x 3"

All equipped with Push Button Safety Starter, Safety hinge door guards adjustable to wheel wear. The Standard line includes all types of grinders, Buffing and Polishing Machines and Speed Lathes.

WRITE FOR CATALOGUE

The STANDARD ELECTRICAL TOOL Co.
CINCINNATI • OHIO
1955 W. EIGHTH STREET

▲ Mention Item NED-4757 when writing ▲



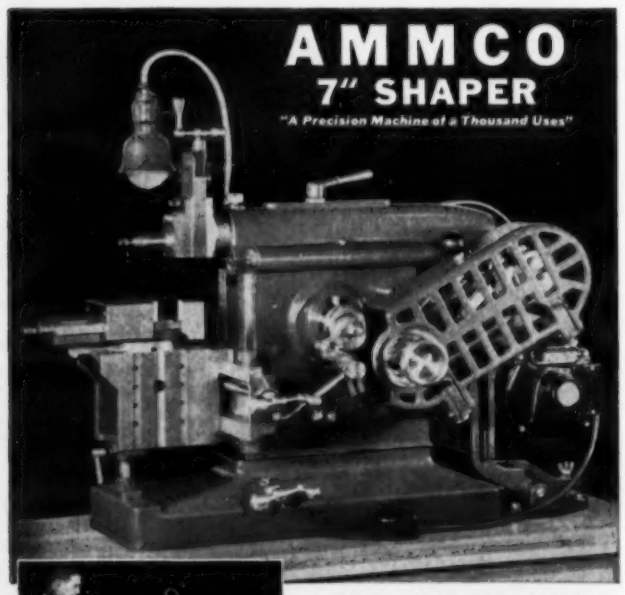
40% More Circulation Than Any Similar Trade Directory

For Advertising Rates Write

MacRae's Blue Book
A DIRECTORY OF AMERICAN INDUSTRY
★ Used Continually in 55,000 Buying Offices
18 E. HURON STREET • CHICAGO
OFFICES IN PRINCIPAL CITIES

▲ Mention Item NED-4758 when writing ▲

AMMCO 7" SHAPER
"A Precision Machine of a Thousand Uses"



IT'S PORTABLE
-- Saves Steps and Time --

Don't tie up a big shaper when so many jobs can be done just as accurately and much quicker and more economically on the AMMCO 7" PRECISION SHAPER.

Available for stationary installation or mounted on portable cabinet easily rolled to the mechanic's workbench ...Write today for specifications and prices.

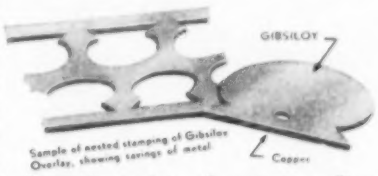
AUTOMOTIVE MAINTENANCE MACHINERY CO.
2110 Commonwealth Avenue North Chicago, Ill.

▲ Mention Item NED-4759 when writing ▲

NEW Applications

LAMINATED CONTACTS

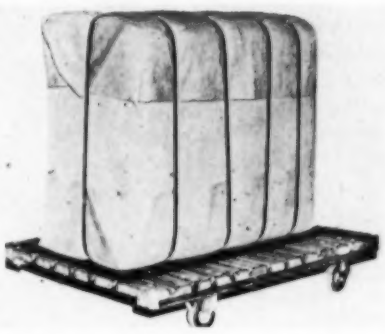
Inexpensive base material is combined with Gibsiloy surfaces through lamination. This fabrication gives surface with good electrical properties for contact purposes, conserves vital metals and results in lower contact costs. This design is available in both inlay and overlay types. Gibsiloy, fine silver or other precious metal contact surfaces are available for wide variety of contact applications. Made by **Gibson Electric Co.**, 8357 Frankstown Ave., Pittsburgh, Pa.



Sample of nested stamping of Gibsiloy Overlay, showing savings of metal

▲ Mention Item NED-4760 when writing ▲

WATERPROOF WRAPPING



Substituted for burlap in wrapping of bales of finished textile goods, CD-99 Duratex, waterproof crinkled Kraft paper, has been found to offer several advantages. Sheet is laid on table under bale. Preformed, sewn tube is slipped around bale and sheet is laid on top. Bale then goes to compressor and metal straps or wire ties are applied.

In many applications, this method results in appreciable time savings over hand sewing methods employed when burlap was used, according to manufacturer. Duratex wrapped bale is both moisture and dust proof, protecting product during shipment or storage. Paper made by **Chase Bag Co.**, corner Franklin St. & Jackson Blvd., Chicago, Ill.

▲ Mention Item NED-4761 when writing ▲

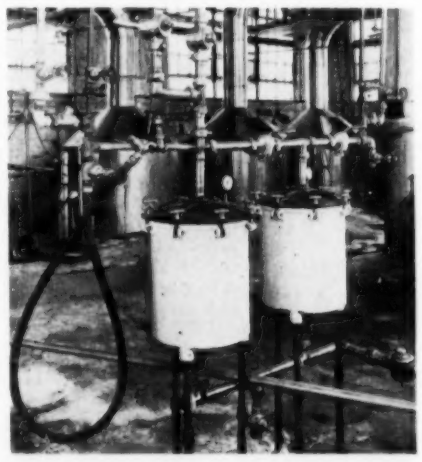
BRAZING PREVENTS WARPAGE

Two-inch solenoid core is wound on this light brass spool, which is important part of control mechanism for big guns and turrets. Brass end piece of this spool is fitted on brass tube and joined permanently to it by means of low temperature silver brazing alloy.

Former method used, called for application of high temperature brazing alloy which caused considerable distortion of spool. Distortion is now eliminated because joint is made at relatively low temperature of 1175 degrees Fahr. Joint, made easily and rapidly, is claimed to be stronger than brass parts of spool. Silver brazing alloys made by **Handy & Harman**, Dept. N-10, 82 Fulton St., New York City.

▲ Mention Item NED-4762 when writing ▲

CLARIFYING FILTRATION



Confronted with problem of clarifying a product with corrosive properties which would normally require stainless steel tanks, pipes and valves, a large processing concern used Filterstone type filters as shown. Not having high enough priority rating to obtain stainless steel filter, firm adapted these units to this work.

Filtering units consisted of porous stone members for support of filter cake suspended in acid-resistant porcelain coated tank. Necessary stainless steel pipes and valves were supplied from stock in company's maintenance department. Rigid self-supporting characteristics of Filterstones made possible rapid cleaning by use of water and compressed air for backwashing. Filter units were not dismantled and there was no injury to cake supporting surfaces by excessive pressures. Filters made by **LeVal Filter Co.**, 1319A S. Michigan Ave., Chicago, Ill.

▲ Mention Item NED-4763 when writing ▲

PAINT ARTILLERY SHELL CASES INSIDE AND OUT ··· AUTOMATICALLY

SPRACO high-production automatic spray finishing machines are designed to paint any individual size of shell case from 20 mm. to 105 mm. inclusive. Painting the outside and inside surfaces of the smaller sizes is performed in a continuous cycle of operations on a single machine.

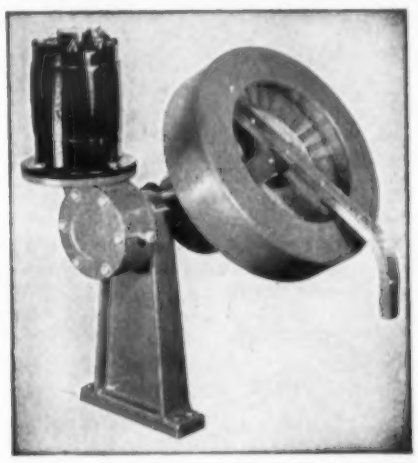
If you have a shell case finishing problem, write us for specific recommendations.

Send for Bulletin G-110

SPRAY ENGINEERING CO.
106 CENTRAL ST., SOMERVILLE, MASS.

▲ Mention Item NED-4764 when writing ▲

HOPPERS
THE FASTEST FEEDING HOPPER EVER DESIGNED



Feeds Screws, Screw Blanks, Nuts, Rivets, Pins, Bearing Rollers, Plain Washers, Discs, Bullet Cores, Special Parts.

HOPPERS ADAPTABLE TO ANY MACHINE

Send Sample Parts For Feeding Speed

DETROIT POWER SCREWDRIVER CO.
2819 W. FORT ST. DETROIT, MICH.

▲ Mention Item NED-4765 when writing ▲

▲ Mention Item NED-4766 when writing ▲

MACHINING EYE-OPENER!

New PORTER-CABLE Wet-Dry BELT SURFACER

does this Facing Job in 28 SECONDS!

(former production 4 per hour!)

★ By surfacing this cast steel bearing cap the old way on a lathe, with a cast stud for chucking, production averaged 4-1/3 pieces per hour. From the start of the new belt-machining method, these parts were produced freehand at the rate of *28 seconds each!*

Make savings in time, money and manpower yourself by switching to this new belt surfacing method. Get outstanding production increases! Take the burden off millers, grinders, shapers, lathes and other hard-pressed units.

Porter-Cable machines use abrasive belts having cutting speeds to 6000 feet per minute. This wet belt method eliminates danger of heating, discoloring, warping and fracturing . . . prevents dust hazards . . . safely handles inflammable materials. It gives you true, straight-grain surfaces, whether flat or curved, in minimum time.

Free new booklet showing many applications of wet-dry belt surfacing on request. Write today.

QUICK DELIVERIES RIGHT NOW!

PORTER-CABLE MACHINE CO.
1710-9 N. Salina St., Syracuse, N. Y.

▲ Mention Item NED-4767 when writing ▲

WHEN ACCURACY COUNTS SPECIFY

G-E MOLDED PLASTICS

This contactor tip support is typical of many applications for G-E molded plastics in electrical assemblies. With integral molded inserts such parts require no fabrication and eliminate expensive assembly operations. Insulation is inherent in the material and a wide range of electrical, physical and thermal properties are available in the many formulations of G-E Textolite plastics. For 60-page booklet and properties chart write SEC. 1-9

ONE PLASTICS AVENUE, Pittsfield, Mass. PD-82

PLASTICS DEPARTMENT

GENERAL ELECTRIC

▲ Mention Item NED-4768 when writing ▲

WHAT'S YOUR MIXING PROBLEM?

We want to know it—and help you solve it. Mixing problems just don't come too tough for our staff of mixing specialist engineers.

And we make the equipment to do it . . . from small laboratory stirrers to heavy industrial mixers with the wallop of a tugboat propeller, in all types and models.

So send us the specifications on the job you want done.

EASTERN ENGINEERING COMPANY
47 Fox St., New Haven, Conn.

EASTERN MIXERS

▲ Mention Item NED-4769 when writing ▲

NEW Literature AND Catalogs

MATERIALS HANDLING—12-page illustrated catalog No. G-6 reveals information on lever hoists, load binders, utility maintenance tools, electric hoists, gear chain hoists, differential chain hoists, I-beam trolleys, and accessories—specifications and diagrams are included—issued by Coffing Hoist Co., 311 Van Buren Street, Danville, Ill.

▲ Mention Item **NED-4770** when writing ▲

MOTOR HANDBOOK—illustrated handbook "A Guide to Wartime Care of Electric Motors" provides guidance for maintenance for all types of electric motors operating on full schedules in accordance with war production needs—text is written for plant engineers and maintenance men—it may also be used in training new men for this type of service work—issued by Allis-Chalmers Mfg. Co., Milwaukee, Wis.

▲ Mention Item **NED-4771** when writing ▲

ACID PROOF PUMPS—4-page illustrated bulletin No. 702 describes characteristics of pumps with standard impeller, with explanations of types and applications of acid resisting pumping equipment—units are chemical stoneware lined and will handle all liquid corrosives except fluorides and hot alkalies—charts and specifications are included—issued by United States Stoneware Co., 60 E. 42nd Street, New York City.

▲ Mention Item **NED-4772** when writing ▲

STEEL FLOORING—4-page illustrated catalog discloses information on patterns of steel gratings and floorings—applications and tabulations of safe loads for various sizes, weights and lengths of this type of flooring is included—installations are portrayed—specifications and charts are included—issued by Kerlow Steel Flooring Co., 21 Mallory Ave., Jersey City, N. J.

▲ Mention Item **NED-4773** when writing ▲

WATERPROOFING—12-page illustrated bulletin "How To Waterproof Concrete, Stucco and Masonry" explains damage done by lack of waterproofing and various methods of waterproofing—discussed too are integral waterproofing, waterproofed cement and specifications for bonded floor finish—specifications for waterproofed stucco are included—issued by Medusa Portland Cement Co., 1000 Midland Bldg., Cleveland.

▲ Mention Item **NED-4774** when writing ▲

CLEANING MATERIALS—3 bulletins "Cleaning Metals Before Processing", "Removal Of Primers" and "Etching Aluminum Preparatory To Spot Welding" list materials available for cleaning processes—all bulletins are illustrated—contain tests, descriptions and explanations of products—issued by Turco Products Inc., Dept. 25, 6135 S. Central Ave., Los Angeles.

▲ Mention Item **NED-4775** when writing ▲

RUBBER CONSERVATION—4-page illustrated folder "If We Have To Do Without, We'll Make the Best of It" includes information on industrial wheels made with steel tires—complete specifications chart gives sizes, diameter, hub length and type—issued by French & Hecht, Inc., 777 Farnam Street, Davenport, Iowa.

▲ Mention Item **NED-4776** when writing ▲

ELECTRICAL EQUIPMENT—16-page illustrated catalog No. 18 discloses information regarding radio, television, sound, electronic and industrial uses of rheostats, resistors, tap switches, chokes and attenuators—complete tables of specifications are given—included are charts of hook-ups—issued by Ohmite Mfg. Co., 4821 Flourney Street, Chicago.

▲ Mention Item **NED-4777** when writing ▲

SCREW PRODUCTS—12-page illustrated catalog No. 5 gives information on cap screws, bolts, nuts, studs, inserts, inserting tools, extracting tools, taps, gages, stud drivers—complete explanation of Aero-thread screw thread system is included—issued by Aircraft Screw Products Co., 25-12 Forty-first Ave., Long Island City, N. Y.

▲ Mention Item **NED-4778** when writing ▲

CIRCUIT CONTROL SWITCHES—4-page illustrated bulletin 57-27 describes circuit control switches for industrial applications—switches explained are for use in signaling equipment, communication apparatus, instrument panel boards, utility lighting systems, specialized lighting equipment and aircraft circuit control systems—toggle switches include single pole, double pole—wiring diagrams of all switches and specifications of assembly parts are given—issued by General Electric Co., 570 Lexington Ave., New York City.

▲ Mention Item **NED-4779** when writing ▲

COKE OVEN HEATING—16-page illustrated booklet, "New Principles in Heating Koppers-Becker Coke Ovens", discussed fundamentals of combustion in oven flues, fuel gas pressure, pressure differential of waste gas to be overcome by injector action of fuel gas, location of orifice with respect to aspirator throat—complete diagrams and charts are added—issued by Koppers Co., Pittsburgh.

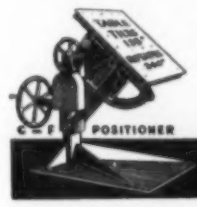
▲ Mention Item **NED-4780** when writing ▲

ANNOUNCING 2 NEW GIANT C-F POSITIONERS

Model 200 20,000 lbs. 20 inches away from table, 8 inches off center.

Model 300 30,000 lbs. 24 inches away from table, 18 inches off center.

Write for new Bulletin WP 22 "Faster, Better and More Economical Welding."



With push button control these giant C-F POSITIONERS (smaller one illustrated) rotate really large heavy and cumbersome weldments a full 360°, tilts them at any angle to 135° from horizontal (moving thru both planes at once to save valuable minutes) and hold in any position permitting strong, smooth, flawless down welding on all surfaces.

C-F Positioners comprise a complete line of pedestal mounted positioners from small (1200 lb.) hand operated models to these electrically operated giants.

CULLEN-FRIESTEDT CO.,
1304 S. KILBOURN AVE. CHICAGO, ILLINOIS

▲ Mention Item NED-4781 when writing ▲

DoAll SAVES TONS OF METAL

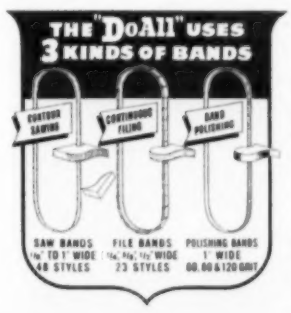
● Uncle Sam tells us that every ounce of metal saved is vital right now. DoAll saves tons and tons by slicing off any metal or alloy as clean as a whistle. Makes no difference whether it's internal or external cutting, this ultra-modern production machine follows a hairline without any waste. Uncut portions of metal or alloy are usable.

Compare DoAll's economic performance with that of shapers, millers and other machines which reduce tons of metal to chips.

FASTEST METHOD TO REMOVE METAL

In production plants everywhere, DoAll is wrecking former time schedules — doing important sawing and filing jobs in one-half, one-quarter or one-eighth former time.

A SIZE FOR EVERY JOB . . . There is a DoAll to do your particular job faster and better. Throat capacities from 16" to 60". Priced from $1000 to $5000, including motors.



Let a factory trained man come to your plant with a DoAll and prove its metal and time saving ability to you.

NEW BOOK

"DoAll on Production" shows DoAlls at work in leading plants. An interesting story told in pictures. Send for copy.

CONTINENTAL MACHINES, INC.
1314 S. Washington Avenue Minneapolis, Minn.

Associated with the DoAll Company, Des Plaines, Ill., Manufacturers of Band Saws and Band Files for DoAll Contour Machines.

▲ Mention Item NED-4782 when writing ▲

Production time cut from

24 HOURS to 2 HOURS— with "HARDSTEEL" DRILL

"With a "HARDSTEEL" drill we now countersink more spring tempered steel trowel blades in two hours time than by former high speed steel countersinks in three 8-hour days — a saving of $12.10 in wages alone while the operator has 22 hours left to do other work", writes Otto Heydrich, tool maker.

You, too, can drill, countersink, counterbore and ream hardened steels, hardened parts, dies, armor plate and other materials — Rockwell "C" 40 and harder — and do it faster, better, and cheaper with "HARDSTEEL".

New shop practice is: — harden first — then drill — to avoid misalignment of holes at assembly caused by heat treat distortion.

You harden it — we'll drill it with "HARDSTEEL"

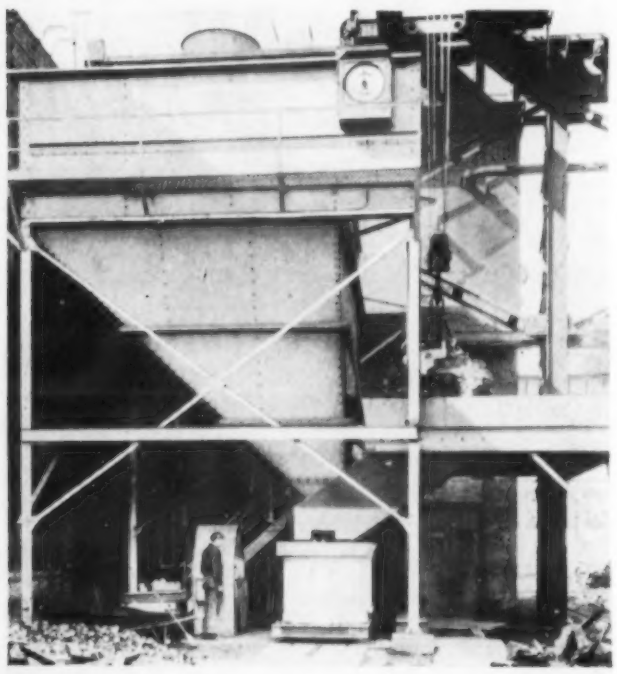
Write for literature

BLACK DRILL CO., 5005 EUCLID AVE., CLEVELAND, OHIO

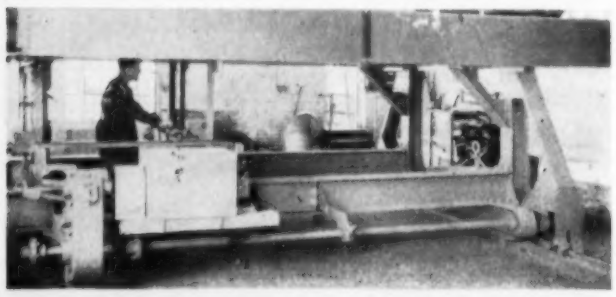
HARDSTEEL DRILLS

REAMERS • TOOL BITS

▲ Mention Item **NED-4783** when writing ▲



Two views of the charging system for smelting processes at the Allis-Chalmers foundry in Milwaukee, where a Fairbanks Hopper Scale is utilized for batching ingredients.



ALLIS-CHALMERS APPLIES FAIRBANKS WEIGHING TO CHARGING SYSTEM

An example of the special application of precision weighing for speeding up industrial processes and lowering production costs is the installation of a Fairbanks Hopper Scale at the Milwaukee foundry of Allis-Chalmers. The system assures faster melting and hotter iron, with less coke.

In the Allis-Chalmers charging system, a 7½-ton crane, equipped with grab bucket, loads coke and limestone into bins from which proper amounts are weighed in the Fairbanks Scale. An extra dial at the top of the coke bin registers all weights, permitting the crane operator to apportion accurately the different kinds of iron and scrap required for the day's melt.

Use your priority to speed production with Fairbanks Scales. Get the kind of weighing equipment that assures no stoppage, no breakdowns, no letdowns — **now** or later. Fairbanks, Morse & Co., 600 S. Michigan Ave., Chicago, Illinois.

▲ Mention Item **NED-4784** when writing ▲

New Literature—Continued

WELD INSPECTION CHART—illustrated wall chart presents different types of welds obtained when work is done normally with normal current—size and shape of bead is discussed—chart describes use of fleet-fillet technique—relation of speed and size of electrode is explained—issued by The Lincoln Electric Co., Cleveland, O.

▲ Mention Item **NED-4785** when writing ▲

WAR GASES—20-page booklet, "Warfare Chemical Hazards", discusses gas warfare from standpoint of civilian defense protective measures—effects of gases are given, as well as their characteristics and suggested first aid treatment for victims—issued by Pennsylvania Salt Co., 1000 Widner Bldg., Philadelphia.

▲ Mention Item **NED-4786** when writing ▲

STAINLESS FABRICATION—40-page illustrated catalog, "Fabrication of Stainless Steels", discloses information on proper procedure for shearing, blanking, drawing, spinning, rolling of molding sections, press and brake forming, machining, forging, soldering, silver brazing, annealing and pickling—included are descriptions of riveting, grinding, buffing, etching—issued by Republic Steel Corp., Cleveland.

▲ Mention Item **NED-4787** when writing ▲

WIRING EQUIPMENT—48-page illustrated catalog "Burndy Pocket Catalog" contains diagrams and illustrations of 75 electrical connector types with application features—wiring data and complete specifications are included—issued by Burndy Engineering Co., Inc., 107 Eastern Blvd., New York City.

▲ Mention Item **NED-4788** when writing ▲

CLEANING COMPOUND—40-page illustrated manual, "Cleaning in Aviation Industry," covers essential phases of cleaning required in aircraft production—over 35 different cleaning operations by tank immersion, steam-detergent and air-pressure-spray methods are discussed—data presented on airplane maintenance includes cleaning planes after test flights, washing plane interiors, cleaning engines, wheels and under gear, cockpits and surfaces—issued by Oakite Products, Inc., 32G Thames Street, New York City.

▲ Mention Item **NED-4789** when writing ▲

AIR COOLED ENGINES—8-page illustrated folder, "How Air-Cooled Engines Serve Industry", includes charts, diagrams and specifications of models and types—full specifications for each model included—capabilities of each are listed—issued by Wisconsin Motor Corp., Milwaukee, Wis.

▲ Mention Item **NED-4790** when writing ▲

SIGNAL SYSTEMS—4-page illustrated folder No. 70 includes complete information about type 30 and type 45 sirens—operation, adjustments, inspection, size and specifications are given—charts and cross section diagrams are included for clarity of explanation—installation and ordering information is given—issued by Foster Engineering Co., 122 Monroe St., Newark, N. J.

▲ Mention Item **NED-4791** when writing ▲

MATERIALS HANDLING—12-page illustrated bulletin No. 122 includes full information on high speed vibrator screen designed to give large capacity and efficiency through correct applications—vibration is produced by adjustable counterweight arms—screen cloth is kept drum-tight by arched transverse spring tension—bulletin explains all styles and models—issued by Robins Conveying Belt Co., 270 Passaic Ave., Passaic, N. J.

▲ Mention Item **NED-4792** when writing ▲

MACHINE & CUTTING TOOLS—20-page illustrated catalog No. 27121 gives complete specifications of line of precision machine tools, cutting tools and related products—line includes thread grinders, carbide tool grinders, cutting tools, hydraulic power units, fuel injection equipment and railroad pins and bushings—issued by Ex-Cell-O Corp., 1238 Oakman Blvd., Detroit, Mich.

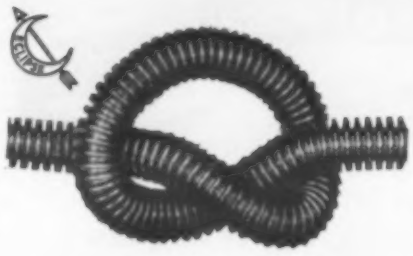
▲ Mention Item **NED-4793** when writing ▲

BARREL & DRUM CARRIER—6-page illustrated folder, "Ernst", gives complete descriptions of barrel and drum carriers—explanations include special explosion-proof equipment for munition, chemical, aircraft plants and other factories where precaution against explosions and fires is necessary—diagrams reveal complete workings of unit—specifications of all models are listed—issued by Ernst Carrier Sales Co., 1456 Jefferson Ave., Buffalo, N. Y.

▲ Mention Item **NED-4794** when writing ▲

SLITTERS—REWINDERS—UNWINDERS—4-page illustrated folder "Essential War Materials" includes information on slitting, rewinding and uniform tension unwinding equipment—given in explanations are combination double winder or single winder score or shear cut slitters, drum winder with score cut slitters, drum re-winder and trimmer, and uniform tension unwinder with auto-hydraulic brakes—specifications and illustrations of models are added—issued by Johnstone Engineering & Machine Co., Washington Ave., and Green St., E. Downington, Pa.

▲ Mention Item **NED-4795** when writing ▲



For STEAM—AIR—OIL CHEMICALS—GASES ACIDS—HYDRAULIC VACUUM — Etc.

Extreme Flexibility Plus • SEAMLESS, ALL-METAL CONSTRUCTION ... MAXIMUM DURABILITY ... MINIMUM WEIGHT

ECLIPSE AVIATION provides the ideal flexible hose for the safe, economical handling of non-solids and non-abrasives at high temperatures and pressures. Solves the problem of intricate, awkward installations of supply and conveying lines, and those involving vibration. Long service life is assured by the use of proper basic materials, advanced design and scientific manufacturing methods.

Write today for Complete Information

ECLIPSE AVIATION

SEAMLESS FLEXIBLE METAL HOSE

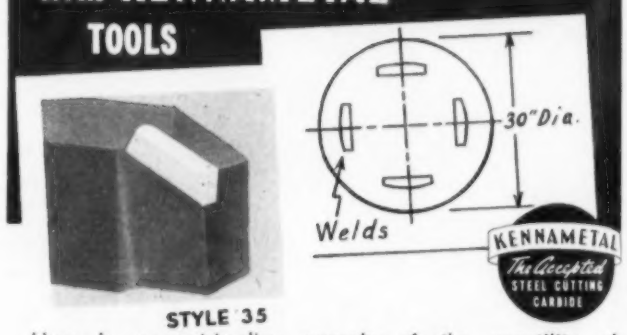
Manufactured and Sold by

BENDIX AVIATION CORPORATION

4710 Wissahickon Avenue Philadelphia, Pa., U. S. A.

▲ Mention Item **NED-4796** when writing ▲

GLASS HARD WELD SPOTS Machined at 376 surface ft./min. with KENNAMETAL TOOLS



STYLE 35

Here is an outstanding example of the versatility of KENNAMETAL. Four lugs had been welded to the face of a large SAE 4160 steel casting, heat treated to 375-400 Brinell, in order to chuck it while facing one side and turning O.D. The lugs were then knocked off, leaving glass hard weld spots to be removed in the facing operation.

A 1½" square KENNAMETAL tool (Grade KM), with 35° neg. back rake and 15° pos. side rake successfully faced this work at 376 surface ft./min., with depth of cut of 1/16" and feed of 1/64". Two complete pieces were finished per tool grind.

Find how KENNAMETAL tools can speed production in your shop. Write for new 44 page pocket manual for KENNAMETAL USERS.

McKENNA METALS Co.

171 LLOYD AVE., LATROBE, PENNA.

Foreign Sales: U. S. STEEL EXPORT CO., 30 Church St., New York (Exclusive of Canada and Great Britain)

▲ Mention Item **NED-4797** when writing ▲

The TRUCK-MAN

ONE TON CAPACITY

$600.00 F.O.B. JACKSON, MICH.

Something new and sensible in material handling equipment. As handy as a pocket in a shirt. Write for descriptive literature.

YARD-MAN, INC.

1414 WEST GANSON ST. JACKSON, MICHIGAN

▲ Mention Item **NED-4798** when writing ▲

Save! AGAIN... AGAIN and AGAIN

with Colson Lift Jack System

SAVINGS in handling costs . . . in storage space . . . in equipment investment . . . increased safety . . . cleared aisleways and loading docks begin *at once* with Colson Lift Jacks and Platforms.

The Colson method combines the advantages of a *platform* truck and a *lift* truck in *one* system. Many platforms can be kept busy with one Colson Lift Jack. Empty platforms stack vertically and save space. Wood or metal platforms in a wide variety of styles and sizes can be used.

The savings which Colson Lift Jacks and platforms can make will pay for the equipment in a relatively short time.

Send for free booklet—The money-saving facts of Colson Lift Jacks are explained in the booklet: "Colson System of Materials Handling." Write for a copy.

THE COLSON CORPORATION
ELYRIA, OHIO
Offices and Agencies in Principal Cities
CASTERS • INDUSTRIAL TRUCKS AND PLATFORMS • LIFT JACK SYSTEMS

▲ Mention Item NED-4799 when writing ▲

CHECK YOUR NEEDS FOR

Speed

INVESTIGATE

ARO

ROTARY PNEUMATIC TOOLS

Faster production goes hand in hand with the use of ARO Rotary Pneumatic Tools for small tool applications throughout industrial plants! Thoroughly practical—saving both time and money over hand methods or the use of larger tools. Light in weight—yet speedy and powerful for drilling, screw driving, nut setting, grinding, filing, polishing and similar operations.

Send for complete new catalog showing applications that may help you increase efficiency and get TOP SPEED in your production. We invite comparison. See your ARO Jobber or write

- √ Internal Grinding
- √ Drilling
- √ Sanding
- √ Screw Driving
- √ Grinding
- √ Paint Mixing
- √ Polishing
- √ Filing
- √ Nut Setting

THE ARO EQUIPMENT CORPORATION, Bryan, Ohio, U.S.A.

▲ Mention Item NED-4800 when writing ▲

Accidents are unpatriotic now!

NEOPRENE

Stanzoils

assure more safety for hands working in oils or acids.

Casualties on the industrial front have become a national menace. Act now to keep safe the busy hands of your men and women workers. Stanzoils of DuPont's miracle neoprene give surer protection, resist attack of oils, acids, dangerous substances, often last 3 to 7 times longer than rubber. You save costly liability claims *and* precious work-hours of vital skilled hands. Neoprene Stanzoils are not a rubber "substitute"; they're a better material, as hundreds of industries have found. Write for current data on deliveries.

Synthetic Rubber Division

STANZOIL PIONEER

THE PIONEER RUBBER COMPANY
Over 20 Years of Quality Glove Making
248 Tiffin Road, Willard, Ohio, U.S.A.
New York • Los Angeles

MADE WITH DU PONT NEOPRENE

▲ Mention Item NED-4801 when writing ▲

New Literature—Continued

LUBRICATION METHODS—56-page catalog No. M-1084 contains lubricating specifications for complete line of manufacturer's milling, grinding, broaching and lapping machines—special section is devoted to hydraulically actuated equipment—charts and diagrams accompany discussions and explanations—issued by Cincinnati Milling and Grinding Machines, Inc., Marberg and South Sts., Cincinnati, O.

▲ Mention Item NED-4802 when writing ▲

MAGNIFICATION & EYESIGHT—4-page illustrated catalog "Super Sight", shows how product combines magnification and properly directed light and how it is adapted to close inspection, fine assembly and precision machining—unit is supplied with either 4 or 5-inch lenses and besides standard models with various brackets for bench and machine, there is also unit to be used with both fluorescent and vaporproof lighting—issued by Boyar-Campbell Co., 6540 Antoine St., Detroit, Mich.

▲ Mention Item NED-4803 when writing ▲

INDUSTRIAL LIGHTING—12-page illustrated catalog, Silv-A-King", deals with practical application of fluorescent and incandescent lighting to industrial plants and particular advantages of each for meeting given plant's requirements—included in discussions are light distribution, light output, lasting efficiency, maintenance, adaptability, cost and standards—issued by Bright Light Reflector Co., Brooklyn, N. Y.

▲ Mention Item NED-4804 when writing ▲

BRONZE VALVES—6-page illustrated folder, "Faircoseal", describes advantages of bronze valves and equipment made by manufacturer—each model and type of valve is illustrated and specifications given—chart of working data gives pipe size, tip size, heating time, depth of bore and other information—issued by The Fairbanks Co., 392 Lafayette St., New York City.

▲ Mention Item NED-4805 when writing ▲

CARBIDE TOOLS—illustrated catalog No. 42V covers specifications and prices of steel cutting carbide tools and blanks—applications of each type of tool are illustrated by drawings—selection and design of tools and blanks is discussed—included are chip breaker designs—correct grinding, boring tool setups and added data—issued by McKenna Metals Co., 171 Lloyd Ave., Latrobe, Pa.

▲ Mention Item NED-4806 when writing ▲

AMPLIFYING & ACOUSTIC DEVICE—8-page illustrated catalog No. 154 covers complete specifications for microphones for various War and Vital Civilian applications—technical data includes dynamic, crystal and carbon microphones for use in ordnance plants, Army camps, air terminals, broadcast stations, police mobile and station transmitting equipment, industrial war factories and OCD control centers—issued by Shure Brothers, 215 W. Huron Street, Chicago.

▲ Mention Item NED-4807 when writing ▲

VENTILATION EQUIPMENT—8-page illustrated catalog No. 460 lists outstanding features of new Victory Axiflo fan equipment—discussed is mechanical efficiency, airflow, rotative speeds, pressure range, weight and size of units—models include VC-7 which operates at speeds of 500 revolutions per minute against pressures of 60 inches water gage—issued by B. F. Sturtevant Co., 45 Readville Street, Hyde Park, Boston, Mass.

▲ Mention Item NED-4808 when writing ▲

MEASURING & CONTROL INSTRUMENTS—16-page illustrated bulletin No. Z6000 describes complete line of measuring and control instruments—included is unit construction of temperature controllers—explained is electronic principle for effecting control without contact between measuring and control functions—bulletin lists prices and numbers for easy reference—issued by Wheelco Instruments Co., Harrison & Peoria Sts., Chicago.

▲ Mention Item NED-4809 when writing ▲

BLOWER EQUIPMENT—20-page illustrated bulletin No. 22-23-B-11 lists advantages of positive displacement type blower equipment—construction features include ring oiling renewable sleeve bearing—explanations of installation methods are given—accessories are discussed in detail—specifications are added—issued by Roots-Connersville Blower Corp., Connersville, Ind.

▲ Mention Item NED-4810 when writing ▲

PUMPING DATA—heavy stock folder contains series of pump application sheets and 18-page booklet covering pump fundamentals—application sheets, of two to eight pages each, include both elementary and advanced technical data on selection, installation, operation and maintenance of all types of industrial pumps for general and specialized services—file folder also contains extra pocket for user's notes—issued by Gould Pumps, Inc., Dept. 50, Seneca Falls, N. Y.

▲ Mention Item NED-4811 when writing ▲

DIAMOND DRESSING TOOLS—4-page illustrated catalog describes torpedo type and single diamond type diamond dressing tools—specifications and explanations are included—construction details are added—prices are given—issued by Willey's Carbide Tool Co., 1340 W. Vernor Highway, Detroit.

▲ Mention Item NED-4812 when writing ▲

ALSOP "SEALED DISC" FILTERS

CLEANSE ANY LIQUID OF ALL IMPURITIES

Liquids used in a product, or in making a product *should* be filtered.

There is present in all water, oils, chemical solutions, gasolene, fruit juices—in fact every liquid, some impurities.

Remove them and you have a better product. Alsop "Sealed Disc" filters do this better; at lower cost, with speed, and effect substantial savings, than by any other method.

For every kind of job, any volume, any degree of filtration, we have a filter ready for you, in portable units or for pipe line connection.

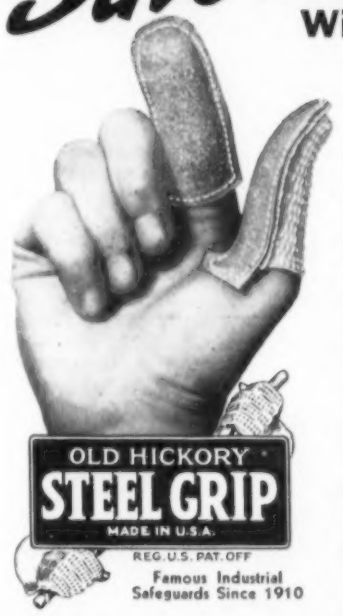
Put your problem up to our filtration experts, with 25 years experience in this one field. That's our business.

ALSOP ENGINEERING CORP.
MILLDALE 15 Main Street CONN.

▲ Mention Item NED-4813 when writing ▲

Save Your Fingers

With Steel-Grip Finger Guards



● On those production jobs where rough or sharp pieces or parts must be handled, let the new Steel-Grip Finger Guards protect fingers and thumbs from abrasions, cuts or blisters. Made of durable leather with elastic web back for snug, cool, comfortable fit. Easy on and off. Worn on any finger or thumb, front or back. One size fits all, men or women. Saves fingers in buffing, burring, grinding, sanding, polishing, punch press work and hundreds of other uses. Send for special trial order of 50 at 8½c each, less 10%. Please attach preference rating and end use classification. Catalog of Steel-Grip Safety Apparel free on request.

INDUSTRIAL GLOVES CO.
637 Garfield Boulevard Danville, Illinois
Canada: Safety Supply Co., Toronto

▲ Mention Item NED-4814 when writing ▲

You move assembly materials EASIER with "Weld-Bilt"

HYDRAULIC LIFT TRUCKS

Many a tight production schedule is moving smoothly because of "Weld-Bilt" Hydraulic Lift Trucks . . . Engineered and Built to specifications to move materials faster, easier, for a longer time, saving worker energy and man hours.

Do you know some of the many "Weld-Bilt" features that make this greater efficiency possible? Write for details TODAY!

Below—New Streamlined "Weld-Bilt" Hydraulic Lift Truck with Hydraulic unit mounted HORIZONTALLY—(protected position that avoids "out-of-service" lay-ups.) Capacities, up to 10,000 lbs.

★ Model DW—Capacity, 6000 lbs.

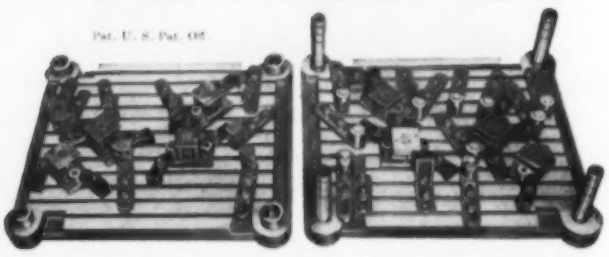
WEST BEND EQUIPMENT CORPORATION
Materials Handling Engineers
220 S. Water Street • West Bend, Wisconsin
Manufacturers of Portable Electric Elevators, Two-Wheel and Four-Wheel Trucks, Skid Platforms, Barrel Racks, Tiering Machines, and special equipment.

▲ Mention Item NED-4815 when writing ▲

FOR WAR AND PEACE PRODUCTION

WHISTLER ADJUSTABLE DIES

FOR FASTER PRECISION PERFORATING and NOTCHING



● Adaptable to any type press. ● Quick change-overs without additional die expense or loss of time. ● Minimum perforating centers of ⅞". ● Full range of standard sizes often from stock.

FREE valuable catalog illustrating production advantages of Whistler dies, tools and special machinery . . . promptly upon request.

S. B. WHISTLER & SONS, Inc.
752-756 MILITARY ROAD BUFFALO, N. Y.

▲ Mention Item **NED-4816** when writing ▲

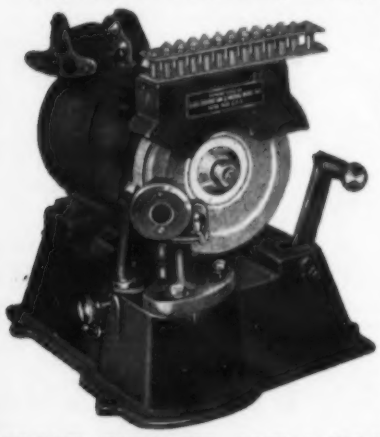
BLACK DIAMOND
• PRECISION DRILL GRINDERS •

INEXPERIENCED HANDS KEEP COUNTLESS DRILLS SHARP—RELEASE SKILLED LABOR FOR MORE IMPORTANT WORK

WHEN small gauge or fractional drills are needed in quantities or in a hurry—it costs time and real money to put an experienced machine operator to work on them.

With a Black Diamond however even the most inexperienced apprentice can keep all small drills sharp to meet any emergency—with lips accurately ground to exactly the same length—at the proper angle and with correct clearance for fast, precision drilling.

Why waste time and money when you can cut 50% and more on grinding costs, save expensive drill stock, reduce drill breakage and actually pay for the machine in a short time with the money you save?



And when you order a Black Diamond be sure to include the web thinning attachment which grinds Notched, Colton, or so called Crank Shaft points. Write for folder today.

BLACK DIAMOND SAW & MACHINE WORKS, INC.
NATICK, MASSACHUSETTS

▲ Mention Item **NED-4817** when writing ▲

This photo was taken at the invitation of the Muzak Transcriptions, Inc., at their new New York plant for the manufacture of fine radio transcriptions of programs for broadcasting. Sarco selected float-thermostatic steam traps for the platens on the molding presses to secure continuous condensate removal without disturbing the temperature control; inverted bucket steam traps for the dryer coils and steam lines because they can stand hard knocks; Sarco thermotons for the cleaning and plating tanks because they combine temperature control at the cost of steam traps alone. Simple Sarco type LSS electric thermostats provide temperature control for the ovens. 155

SARCO SAVES STEAM
SARCO COMPANY, INC.
475 Fifth Avenue, New York, N. Y.
Sarco Canada Ltd., Federal Bldg., Toronto, Ont.

▲ Mention Item **NED-4818** when writing ▲

New Literature—Continued

POWER PLANT EQUIPMENT—24-page illustrated catalog No. 142 contains technical data on such equipment as pump valves, steam pump governors, gage cocks, ball type high pressure steam traps, safety feedwater regulators, high and low alarm columns, flanged silent check valves and standard feed regulators—specifications are included—issued by Williams Gauge Co., 2046 Pennsylvania Ave., Pittsburgh.

▲ Mention Item **NED-4819** when writing ▲

PROTECTIVE COATINGS—14-page catalog, "Now You Too Have Found The Better Way", is complete with explanations and descriptions on protective coatings of varied nature—included is information on Alkacite type "A"—given are descriptions, uses, application, its acid and alkaline resistance—type "E" is also discussed—issued by Protective Coatings Inc., 10391 Northlawn, Detroit.

▲ Mention Item **NED-4820** when writing ▲

AIR CONDITIONING EQUIPMENT—12-page illustrated catalog No. AC lists air conditioning equipment according to functional classification and then lists industries requiring different types of installations—functional breakdowns include four classifications of equipment—temperature, humidity control, refrigeration, heating and special applications—given data includes specifications, dimensions and weight of equipment—issued by Carrier Corp., 302 S. Geddes St., Syracuse, N. Y.

▲ Mention Item **NED-4821** when writing ▲

LIQUID DENSITY RECORDER—8-page illustrated bulletin No. A-264 describes density recorder—unit records continuous direct measurement of flowing liquid—where automatic control of density is important, bulletin explains Stabilog density controller—both instruments have same measuring systems and both may be read in specific gravity—auxiliary equipment is discussed—issued by Foxboro Co., 124 Neponset Ave., Foxboro, Mass.

▲ Mention Item **NED-4822** when writing ▲

STEEL WOOL—4-page illustrated folder, "American Steel Wool in War Industries", discusses adaptability of steel wool where cleaning or finishing is required by machine operation—descriptions of various sizes, types and grades are included—issued by American Steel Wool Mfg. Co., 42-24 Orchard Street, Long Island City, N. Y.

▲ Mention Item **NED-4823** when writing ▲

THREAD MILLING MACHINES—4-page illustrated catalog, "Thread Miller", reveals information on thread milling machines—descriptions include compensating bar, taper attachment, compound taper attachment, translating gears, metric lead screw, internal threading, cam operation and special tailstock—standard equipment lists are included—issued by Waltham Machine Works, Dept. NED, Waltham, Mass.

▲ Mention Item **NED-4824** when writing ▲

BURNER IGNITION SYSTEM—16-page illustrated catalog describes automatic retractable oil electric ignition system for lighting of pulverized coal, oil or gas burners by remote control—unit functions from powerful ignition spark and turns on light fuel oil to ignite from spark—once flame is established, electrodes retract from vicinity to prevent burning or distortion—catalog includes specifications and descriptive diagrams—issued by The Engineering Company, 75 West Street, New York City.

▲ Mention Item **NED-4825** when writing ▲

LOCKING NUTS—12-page illustrated manual No. 2 lists types of Palnuts such as double locking action, regular types, inverted type, acorn, washer, and specials—typical assemblies are described by diagrams and drawings—applications are listed and specifications are given—issued by The Palnut Co., 61 Cordier Street, Irvington, N. J.

▲ Mention Item **NED-4826** when writing ▲

WATER REFINING—42-page illustrated bulletin, "Corrective Chemical Feeding", contains technical data on problems of corrective chemical feeding for water refining—types of equipment for each problem met in process is described—charts and diagrams are included—issued by American Water Softener Co., S. E. Corner of Lehigh & 4th Streets, Philadelphia.

▲ Mention Item **NED-4827** when writing ▲

ELECTRIC EQUIPMENT FOR AIRCRAFT PRODUCTION—42-page illustrated booklet GEA-3395 contains applications and descriptions of wide range of precision built equipment necessary in aircraft industry—described in bulletin are load-center power distribution systems, motors and controls for many uses, resistance welding controls, arc welding equipment, heat-treating equipment, and testing equipment—issued by General Electric Co., Schenectady, N. Y.

▲ Mention Item **NED-4828** when writing ▲

FLOOR FINISHING DATA—16-page illustrated catalog, "How To Finish Sixteen Kinds Of Floors," contains complete floor finishing specifications—included in listings of floors and finishes are oak, maple, pine, Masonite, linoleum, cork, cement, magnesite and tile—instructions are given for finishing of most standard classes of floors—issued by O'Brien Varnish Co., South Bend, Ind.

▲ Mention Item **NED-4829** when writing ▲

THE ANSWER TO YOUR DRESSER PROBLEM

View showing quarter section of dresser.

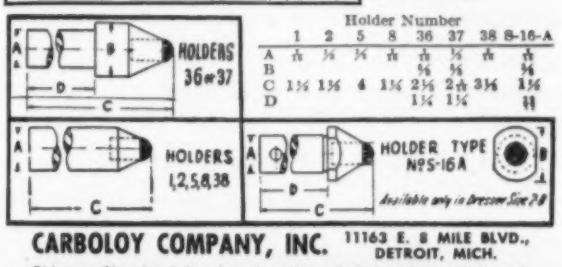
The answer to your wheel dressing problem—Carboloy diamond impregnated dressers. In stock and ready for immediate delivery—these dressers require no resetting—afford you 90% diamond utilization with no fear of diamond loss—stand unusual abuse—and save at least 25% in annual dresser costs.

Why not let this dresser start saving time and money for you?

Complete ordering data below—or send for Catalog DR-100.

Grinding Wheel Diameter	Grinding Wheel Width	Correct Dresser	Price Each
Up to 20"	Up to 1½"	2-B	$ 9.60
Up to 26"	Up to 2½"	3-C	12.60
Up to 42"	Up to 8"	4-D	15.35

*Mounted Free in Desired Holder. Standard Holders shown below. Special Types when needed. Allow 1 Week—10 days for holders No. 37, 38, and S-16-A.



	Holder Number 1	2	5	8	36	37	38	S-16-A
A	7/16	½	½	7/16	7/16	½	7/16	7/16
B					⅝	⅝		¾
C	1⅛	1⅛	4	1⅛	2⅛	2 7/16	3⅛	1⅛
D					1¼	1¼		11/16

CARBOLOY COMPANY, INC. 11163 E. 8 MILE BLVD., DETROIT, MICH.
Chicago, Cleveland, Los Angeles, Newark, Philadelphia, Pittsburgh

CARBOLOY Diamond Impregnated WHEEL DRESSERS

▲ Mention Item **NED-4830** when writing ▲

SAVE TOOLS--SAVE TIME

Machine Cast Iron this *Faster* way

EASE of operation and quick flexibility of speed control adapt the Given Vari-Speed Drive to many special applications . . . for example, *machining cast iron.*

Penetrating cast iron scale, at the same high speed that the soft inner structure can be machined, quickly burns the tool point. But the GIVEN instantly reduces the work-piece to a safe penetration speed, then, with a quick spin of the handwheel, shoots the r.p.m. to a high production level. No time lost reconditioning burnt cutters, no time lost stopping and starting the machine, no belt changing! Cutters last longer, production records are broken!

Write for bulletin, recommendations, and estimates.

GIVEN MACHINERY CO.
BOX 235, VERNON STATION, LOS ANGELES

GIVEN VARI-SPEED DRIVE

▲ Mention Item **NED-4831** when writing ▲

New Davis-Made Solenoid Pull Type, No. 2861 Described in Bulletin.

New Davis-Made Solenoid Push-Pull Type, No. 2923 Described in Bulletin.

● Describes two New Improved, DAVIS-MADE Solenoids, for hydraulic valves and general industrial purposes.

Coils may be paper section wound, cloth taped, and treated to make impervious to cutting oils and coolant. Easy installation for either direct or remote control, and short quick thrusts. AC or DC. All voltages. Stroke ⅞".

Two Davis plants, ample capacity and force to assure quick delivery on Coils, Coil Assemblies, Windings, Solenoids, Magnets, Transformers. Ask for new bulletin and catalog. Wire or write.

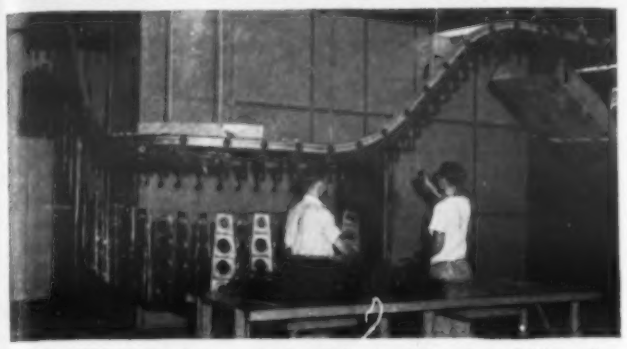
DEAN W. DAVIS & CO., Inc.
Precision Made Coils for Every Electrical Purpose
549 W. FULTON ST. CHICAGO, ILL.

▲ Mention Item **NED-4832** when writing ▲

For Your Convenience in Obtaining Information on Products, Use Inquiry Blank Enclosed in This Issue.

Here's How NORTH AMERICAN AVIATION, INC.,

SPEEDS WAR PRODUCTION



THIS is another example of the flexible adaptability of the Link-Belt trolley conveyor and how it helps to speed-up production of aircraft parts.
Illustration shows conveyor dipping down to loading table where one attendant hangs a wire carrier on the empty conveyor while another hangs parts on hook of the carrier. The loaded conveyor then rises and turns to enter upper part of enclosure over dipping tank. It now descends to allow parts to pass through the tank of chromate primer, and then rises toward the ceiling. Conveyor now continues through an air-drying area and finally automatically discharges parts into trucks.
Trolley conveyors being suspended from overhead, make ceilings pay dividends and travel irregular paths at predetermined speeds to meet production requirements. Send for copy of Trolley Conveyor Book No. 1630. 8697-C

LINK-BELT COMPANY
Chicago, Philadelphia, Indianapolis, Atlanta, Dallas, San Francisco, Toronto. Offices, warehouses and distributors in principal cities.

LINK-BELT CONVEYORS

▲ Mention Item **NED-4833** when writing ▲

When **NAILS** *Won't Hold*

USE

PAINE TOGGLE BOLTS

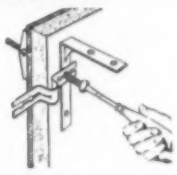
Fig. 123

In Lath and Plaster, Hollow Tile, Sheet Rocks, Insulation Boards

The quickest, safest way to fasten fixtures, brackets, carpentry work, electrical and plumbing equipment to these hollow materials. The time saving alone will more than pay for PAINE Toggle Bolts. You'll find PAINE Toggle Bolts in 9 different head styles in standard diameters from 6/32 to 1/2" in standard lengths.

FREE WITH EVERY BOX OF PAINE TOGGLE BOLTS

TOGGLE BOLT CLAMP



Cuts Toggle Bolt installation time one-half. Enables mechanic to tighten bolt with screw driver as illustrated. Saves the fingers on every job.

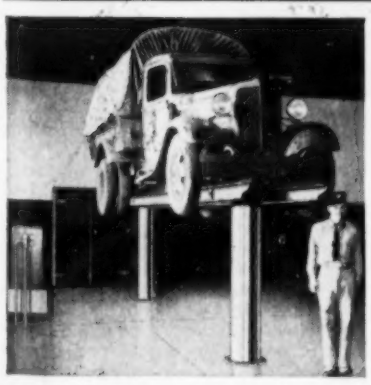
Ask your Mill Supplier and Write for Catalog.

THE PAINE CO.
2977 CARROLL AVE., CHICAGO, ILLINOIS

Offices in Principal Cities

PAINE FASTENING and HANGING DEVICES

▲ Mention Item **NED-4834** when writing ▲



The heavy duty Rotary Truck Lift illustrated above is serving the U. S. Army at Scott Field, Illinois.

HELPING KEEP THE FLEETS IN SERVICE

Another war-time job for Rotary Truck Lifts

The War has conclusively proven that **transportation** will be a vital factor in speeding victory. KEEP YOUR FLEET "Rolling" by proper inspection and service on a **genuine Rotary** Truck Lift. Rotary pioneered the Automobile and Truck Lift and we build them today to operate on a twenty-four hour schedule, seven days a week, without service interruption even in such severe service as on a wash-rack.

Powerful, smooth operating, full-hydraulic action for safety, "deadman" valve control and such fool-proof features as the Automatic Air Bleeder make Rotary Lifts the best buy on the market today! Available in single or double plunger models, with capacities through 44,000 lbs., operated by your available compressed air or by a Rotary Electric Pumping Unit.

Also, Rotary's Oildraulic Freight Elevators, Loading Dock Elevators and Material-handling Oil-hydraulic Jacks can be of real service in your plant.

Write today for a Truck Lift catalog No. 114-T or manuals on other Rotary products. No obligation, of course. Rotary Lift Company, 1071 Kansas St., Memphis, Tenn.

☆ **LIFTS**

Rotary MEMPHIS

▲ Mention Item **NED-4835** when writing ▲

New Literature—Continued

TOOL CONTROL SYSTEM—4-page illustrated folder A697 covers methods of protection for tool investment—complete descriptions of machines that record charge-outs without error—time is saved—responsibility is fixed—folder gives complete list of advantages and specifications—issued by Ohmer Register Co., Dayton, O.

▲ Mention Item **NED-4836** when writing ▲

OFFICE SUPPLY CONSERVATION—12-page illustrated booklet details best methods for prolonging life of equipment commonly used in offices—instructions are given to every employee of office that he might do his part in "war against waste"—issued by Allis-Chalmers Mfg. Co., Milwaukee, Wis.

▲ Mention Item **NED-4837** when writing ▲

WIRE CLOTH PRODUCTS—116-page illustrated booklet covers woven wire screen and wire cloth products—included are instructions on how to compute mesh, space and open area—diagrams of weaves are given—booklet lists methods of testing wire cloth—complete table of specifications and prices is added—issued by Newark Wire Cloth Co., 351 Verona Ave., Newark, N. J.

▲ Mention Item **NED-4838** when writing ▲

ELECTRICAL DISTRIBUTION—84-page illustrated catalog 426 includes complete information on safety switches, service equipment, ducts, lighting panels, fuse panels, switchboards, circuit masters—specifications and charts of hook-ups are given—applications are covered for each unit described—issued by Bull Dog Electric Products Co., 7610 Jos Campau Ave., Detroit.

▲ Mention Item **NED-4839** when writing ▲

WELDING EQUIPMENT—20-page illustrated booklet gives complete history of company and its manufacturing products—arc welding equipment, research departments, training school methods and manufacturer's part in war effort is portrayed—included are applications of equipment in war industries and descriptions of model types and specifications—issued by Hobart Brothers Co., Troy, O.

▲ Mention Item **NED-4840** when writing ▲

PLASTIC CORK—2-page bulletin No. 7-B explains what it can do in detail—bulletin includes uses such as for stopping of condensation drip from all surfaces including water pipes, storage tanks, condensors, air ducts, blower pipes and other surfaces—discussion also covers application and coverage methods—issued by J. W. Mortell Co., 526 Burch Street, Kankakee, Ill.

▲ Mention Item **NED-4841** when writing ▲

TEMPERATURE CONTROL—36-page illustrated catalog, "Controls", reveals condensed information on temperature control units for heating, ventilating, air conditioning, and industrial applications—motor operated valves, control motors, thermostats, humidity controllers, program switches and accessory equipment which goes to make up system are all discussed—issued by Barber-Colman Co., 230 Loomis Street, Rockford, Ill.

▲ Mention Item **NED-4842** when writing ▲

LIGHTING SPECIFICATIONS FOR WAR PLANTS—32-page illustrated catalog, "Productive Lighting", discloses vital information concerning types of lighting equipment which can be secured with proper priorities—discussed are 21 lighting problems and in addition, specifications show how to analyze seeing task and to determine amount of light and type which is needed—both fluorescent and incandescent lighting is covered—issued by Benjamin Electric Mfg. Co., Des Plaines, Ill.

▲ Mention Item **NED-4843** when writing ▲

LIQUID HANDLING—40-page illustrated catalog, "Industrial Equipment", gives valuable information on filtration and distillation, lubrication equipment, metering equipment, pumping units, refueling systems, storage and dispensing and miscellaneous equipment—specifications, diagrams and explanations are added—issued by S. F. Bowser & Co., Inc., 1391 E. Creighton Ave., Fort Wayne, Ind.

▲ Mention Item **NED-4844** when writing ▲

METAL COATING—10-page illustrated catalog, "Black", reveals data from research files of manufacturer illustrating effect of treatment time, bath temperature, bath composition and surface hardness upon protective value, penetration and wear resistance of oxide coatings—added is discussion of how these factors can be made to increase production, reduce treatment time and secure resultant economies—issued by Alrose Chemical Co., Dept. NED., Providence, R. I.

▲ Mention Item **NED-4845** when writing ▲

PUMPING EQUIPMENT—24-page illustrated catalog, "Rotary Pumps", includes information on power pumps in capacities from 5 to 700 gallons per minute, sanitary pumps in capacities of 50 and 100 gallons per minute, truck pumps in 50 and 90 gallons per minute, hand pumps in 54 different models with capacities of 7 to 25 gallons per minute—construction and specifications are explained—applications are given—accessories are listed—issued by Blackmer Pump Co., 1976 Century Ave., Grand Rapids, Mich.

▲ Mention Item **NED-4846** when writing ▲

A MOTOR FOR USE IN MAGNESIUM AND ALUMINUM DUST . . . and other combustible metal dusts

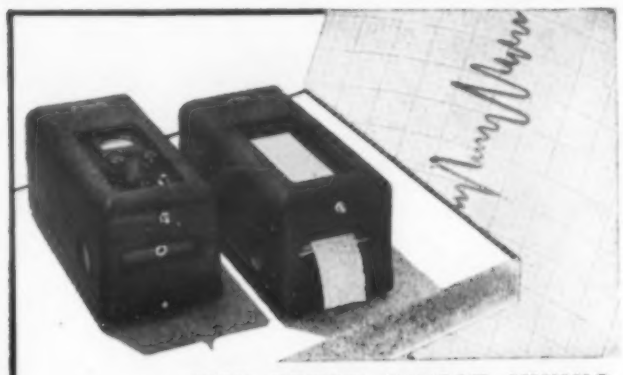
HERE'S a motor specifically approved by Underwriters' Laboratories, Inc., for service in the presence of magnesium dust, aluminum powder, and other combustible metal dusts. It fills a critical need of ordnance and metal-working plants, and of those handling combustible metals in powder form, or machining, grinding, or polishing combustible metals. It's another FIRST among G-E motors for hazardous locations. Bulletin GEA-3922 describes it—write today for your copy. *General Electric Company, Schenectady, New York.*

The typical Class II, Group E, motor shown above is available up to 125 hp

GENERAL ELECTRIC

▲ Mention Item **NED-4847** when writing ▲

▲ Mention Item **NED-4848** when writing ▲



THE BRUSH DIRECT INKING

OSCILLOGRAPH

FAST—SIMPLE—ACCURATE

Records mechanical or electrical fluctuations up to 120 cycles per second.

With appropriate electro-mechanical pickup or direct electrical coupling it accurately records vibrations, pressure changes, dynamic strains, time intervals, transients and the like.

Operated by merely plugging into 110-120 volt, 60 cycle, A.C. line and connecting to the required pickup or circuit.

THE BRUSH SURFACE ANALYZER

Immediate ink-on-paper record of "topographic" profile of finished surfaces in millionths of an inch in finished metals, glass, plastics, paper, etc.

BRUSH PRODUCTS

THE BRUSH DEVELOPMENT CO.
3311 PERKINS AVE. • CLEVELAND, OHIO

▲ Mention Item **NED-4849** when writing ▲

Can these VINYLITE plastics' properties help you solve a problem?

In the past, "waterproof cloth" meant a fabric treated with oil, or coated with rubber, or other compound. But these coatings developed a disagreeable odor when wet, became brittle when cold, or sticky when hot. As a result, there has long been a demand for a more satisfactory waterproof cloth.

To meet this demand, the Plastics Division of Carbide and Carbon Chemicals Corporation has been carrying on an intensive research program, and there is now available a superior cloth coating based on VINYLITE resins. The properties of these resins make them especially suitable for this type of application. Unlike most plastic materials, they may be plasticized to yield tough, flexible coatings that remain pliable over a wide temperature range. They are highly resistant to water and do not crack nor become brittle upon aging. They are applied to the cloth by calendering or spreading.

The unusual properties of VINYLITE resins make them adaptable to a wide variety of durable coatings . . . for metal, paper, leather, concrete, and ceramics, as well as cloth. If you are engaged in war production, and are searching for materials with the unique combination of properties offered by VINYLITE plastics' surface coatings, we suggest that you enlist the full co-operation of our technical staff.

VINYLITE RESIN COATINGS BRING MANY IMPORTANT PROPERTIES TO YOUR PRODUCTS

WATER-RESISTANCE—In addition to their waterproof characteristics, certain coatings made with VINYLITE resins have low moisture-vapor transmission.

RESISTANCE TO HEAT AND COLD—Coatings will not become brittle or sticky under extreme climatic conditions. For example, they meet the rigid specifications for army raincoats, where coatings must neither become sticky at 180 deg. F., nor crack at zero deg. F. Others meet temperature ranges from −40 deg. F. to 250 deg. F.

TOUGHNESS—VINYLITE resin coatings are so tough that they are used to coat metal sheets *before fabrication.* Even though extended, abraded, and compressed under terrific pressures from the forming dies, the protective film remains intact.

CHEMICAL-RESISTANCE—Numerous tests, conducted in mineral acids, alkalies, corrosive chemicals, and various solvents and diluents, indicate little or no effect upon VINYLITE resins used for surface coatings.

VINYLITE RESIN COATINGS PROTECT MANY TYPES OF ESSENTIAL PRODUCTS

RAINCOATS and paulins for men and materiel are made waterproof, weatherproof, and wear-resistant.

PAPER containers, labels, and wrappers are given a non-toxic protection against water, oils, alcohol, and the majority of corrosive chemicals.

DRUMS, tanks, and other metal containers, are safeguarded against corrosion, and their contents from contamination.

CONCRETE floors, vats, and piping are protected against corrosive action of sewage and industrial wastes. Piping and vats used in food manufacture are coated to prevent contamination of the product.

Plastics Division
CARBIDE AND CARBON CHEMICALS CORPORATION
Unit of Union Carbide and Carbon Corporation
UCC
30 East 42d Street, New York, N.Y.

Vinylite* PLASTICS

Rigid Sheets · Flexible Sheeting and Film · Adhesives
Molding and Extrusion Compounds · Resins for Surface Coatings

*The word 'Vinylite' is a registered trade-mark of Carbide and Carbon Chemicals Corporation

▲ Mention Item **NED-4850** when writing ▲

New Literature—Continued

STAINLESS STEEL FABRICATION—4-page illustrated folder, "Stainless Fabrication", includes complete descriptions of stainless steel used in explosive powder industry, airplane motors, oil industry, chemical and food industry and in silk industry—model and types are identified and explained—table of specifications is given—issued by Alloy Mfg. Co., Inc., 3003 Brereton Ave., Pittsburgh.

▲ Mention Item **NED-4851** when writing ▲

ELECTRICAL EQUIPMENT—4-page illustrated folder No. 10M relates valuable information on copper fuse clips and screw terminals—folder is compendium for technical as well as general information—design and construction features include accurately formed surfaces to give maximum contact, heat treated metal for extreme hardness and tight spring tension—complete tables of specifications are added—issued by Littlefuse, Inc., 4757 Ravenswood Ave., Chicago.

▲ Mention Item **NED-4852** when writing ▲

MECHANIC'S TOOLS—12-page illustrated catalog, "Tools For Mechanics", describes and lists more than 500 different types and sizes of punches, chisels, drills, socket wrenches—complete explanations and specifications are included with charts and diagrams of applications—issued by American Swiss File & Tool Co., 410 Trumbull Street, Elizabeth, N. J.

▲ Mention Item **NED-4853** when writing ▲

REPRODUCTION EQUIPMENT—28-page illustrated catalog, "Simplified Print Making", describes process of making dry-developed, positive-type white prints—complete specifications and diagrams are included—models and types are described—issued by Ozalid Products Division, General Aniline & Film Corp., Johnson City, N. Y.

▲ Mention Item **NED-4854** when writing ▲

SPEED REDUCER—two bulletins, "Torque versus Horsepower", and "Overhung Loads on Speed Reducer Shafts", include illustrations and descriptions in non-technical language—data and specifications are given—explanations and information for solving speed reducing problems cover subject thoroughly—issued by Winfield H. Smith, Inc., 22 Eden St., Springville, Erie County, N. Y.

▲ Mention Item **NED-4855** when writing ▲

ELECTRICAL DUCTS—26-page illustrated catalog No. 425 covers design of Trol-E-Duct—types and specifications are given—included are installation methods for mercury vapor lighting, fluorescent lighting and incandescent installations in aircraft plants—diagram layouts are provided for hook-up systems—both standard equipment and specialities are listed—issued by BullDog Electric Products Co., 7610 Jos Campau Ave., Detroit.

▲ Mention Item **NED-4856** when writing ▲

SCREW PRODUCTS—96-page illustrated booklet in which all items conform to revised suggested stock size lists, as per maximum price regulation No. 147—booklet offers complete coverage of screw products and is divided for easy reference—technical data, weights, and dimensions are included—featured is section covering AN products for aviation industry—issued by Manufacturers Screw Products, 292X W. Hubbard Street, Chicago.

▲ Mention Item **NED-4857** when writing ▲

GEAR COUPLING—4-page illustrated folder, "Up To The Front", features coupling design, forged steel parts, lubrication, concentricity of hubs and covers, oil plugs—ratings of standard type Francke and Waldron gear type couplings are included—diagrams, charts, specifications and general information are discussed—issued by John Waldron Corp., New Brunswick, N. J.

▲ Mention Item **NED-4858** when writing ▲

DITCH DIGGER—4-page illustrated catalog, "Model 12", reveals operation and construction of model 12 wheel type ditcher—unit digs straight-sided round bottomed trench up to 24 inches wide and 5 feet, 6 inches deep—special features of unit are outlined and specifications given—operation cost and applications are discussed—issued by Buckeye Traction Ditcher Co., Findley, O.

▲ Mention Item **NED-4859** when writing ▲

COPPER CONSERVATION—20-page illustrated catalog GED-1011 gives five ways to conserve copper in war plant electrical systems—suggestions such as covering as much distance with high-voltage circuits and as little with low-voltage as possible, locating of substations in center of load areas, use of small substations, distribution of power and usage of cable with high temperature insulation—issued by General Electric Co., Schenectady, N. Y.

▲ Mention Item **NED-4860** when writing ▲

FACILITIES SURVEY—Two illustrated catalogs, 16 and 12-pages, present picture of exact type of work this company is equipped to undertake on prime and sub-contracts—survey includes coverage of scales, test apparatus, precision springs and precision instruments—machine equipment employed in plant, engineering facilities and management are listed—issued by John Chatillon & Sons, 85 Cliff Street, New York City.

▲ Mention Item **NED-4861** when writing ▲

FILING SAWS FOR VICTORY

FILING SAWS For VICTORY

The Foley Filer is in use by U. S. Navy for shipyards, air bases, battleships, navy tenders — by U. S. Army posts and airports—by U. S. Engineers, Light House Dept., Treasury, Mint, N. Y. A., W. P. A.—also hundreds of Defense projects and industrial plants.

ONE MACHINE Files All Saws

The Foley Filer is the only machine that sharpens cross-cut circular saws 3" to 24" in diameter, band saws ⅛" to 4½" wide — all hand saws. The Foley also cuts down filing time, saves on files and reduces saw breakage.

FOLEY AUTOMATIC SAW FILER

Your saws will cut faster and truer and stay sharp longer when filed on a Foley Saw Filer. The exclusive patented Foley jointing principle straightens up uneven teeth and makes them perfect in size, shape, spacing. That is why Foley-filed saws increase sawing production 25% to 40%.

THOUSANDS IN USE. The Foley Saw Filer has proven its value and quality by many years of use on thousands of machines in service. Write direct to us for literature and prices.

FOLEY MFG. CO., 23 Main St. N. E., Minneapolis, Minn.
Send full information on the Foley Saw Filer.
Name .....
Address .....

▲ Mention Item **NED-4862** when writing ▲

Guard Against

DERMATITIS

USE

STASAFE FABRIC

SAFETY GARMENTS

Flexible, Lightweight Protection Against
OILS
ACIDS
SOLVENTS
PAINTS
TARS
★

Long Lasting and Resistant To
FLAME
CREOSOTE
VARNISH
CAUSTICS
★

APRONS, JUMPERS, LEGGINGS, SLEEVES, BIBS, SPATS, etc., made from Stasafe fabric, are approximately one half the weight of rubber coated garments. Workers are enthusiastic over the new freedom of movement offered by this remarkable material and are more willing to wear garments made from it. Because of its original lower cost and longer life, Stasafe fabric will pay you dividends not only in original saving and greater wear, but in many cases through increased production efficiency as well.

WRITE FOR DETAILS AND PRICES

ECONOMY SKIN SHIELD

To combat Dermatitis and prevent the skin from coming in contact with irritating substances.

GERMS will live in oils and solvents. An application of Economy Skin Shield before work will prevent their contact with the worker's skin and discourage Infection or Dermatitis. Harsh, skin drying solvents are not necessary for cleaning up if you use Economy Skin Shield.

FREE SAMPLE ON REQUEST

Dispenser type bottle furnished free with each gallon. A gallon contains over a thousand average applications.

STANDARD SAFETY EQUIPMENT COMPANY
232 W. Ontario St. Chicago, Ill.

▲ Mention Item **NED-4863** when writing ▲

PENCIL LINES PRINT STRONG AND SHARP

You'll be able to see—and appreciate—the unbroken density of your hard pencil line. The new surface "takes" the hard pencil so completely black that light "sparkles" do not get thru the line to mar the print. That means clean blue-prints . . . blue-prints with razor-sharp definition from pencil drawings. This ocular proof of Pencil-TEX superiority explains why progressive draftsmen are using Pencil-TEX, by preference, for better results with pencil speed. And the price of Pencil-TEX is so "right", compared to increased speed, increased production capacity and increased satisfaction, it writes itself off in what you gain. Remember, Pencil-TEX is available for immediate delivery, with Priority of A2 or better, in 20 yard rolls of 30, 36 and 42 in. widths. FREE: Send for sample work sheets of Pencil-TEX—try it at our expense.

PHONE OR WRITE YOUR NEAREST POST DEALER
THE FREDERICK POST CO., BOX 803, CHICAGO

INSTRUMENTS • EQUIPMENT • BLUE PRINT PAPERS • KINDRED SENSITIZED PRODUCTS • POST

▲ Mention Item **NED-4864** when writing ▲

It's Easier To Do
GOOD SOLDERING & TINNING
WITH THESE
Special Soldering Fluxes

You will find it easier to do good soldering and tinning with RUBYFLUID Soldering Products. It offers many working advantages.

FOR STAINLESS STEEL—Use Ruby's Stainless Steel Flux, perfected for this metal. Eliminates many of the problems that formerly arose from attempts to join stainless steel. No special equipment or excessive heat required. Discoloration is eliminated. Used and recommended by stainless steel producers.

FOR GENERAL SOLDERING and TINNING—Use Rubyfluid Flux or Paste. It wets out freely and properly conditions the metals so that a strong, neat union is possible without fuss or bother. Rubyfluid is easy and pleasant to use. There are no objectionable or dangerous fumes.

Try these quality soldering products—they're proven best by test. Enjoy the advantages they offer. Order from your supplier or direct from—

RUBY CHEMICAL CO.
72 McDowell St. Columbus, Ohio

Rubyfluid

▲ Mention Item **NED-4865** when writing ▲

Here's what UNIVERSAL
TEMPERATURE CONTROLLERS
mean to you

Instantaneous control action with the famous "Electronic Principle" control system and extreme accuracy of temperature measurement, plus the features illustrated and many others. Wheelco UNIVERSAL Controllers include Capacitrols, Potentio-trols, Limitrols and Resistance Therm-otrols.

Temperature Control Adjustment easily made from front of Controller. Control Setting may be locked inside case if desired.

Interchangeable Measuring Sections permit choice of scale range or type of temperature measuring system (Potentiometer, Millivoltmeter or Resistance Thermometer).

For full details, write for free Bulletin Z6000

Wheelco Instruments Co.
129 W. HARRISON STREET • • • CHICAGO, ILLINOIS

▲ Mention Item **NED-4866** when writing ▲

New Literature—Continued

IRON PIPE—48-page illustrated booklet, "Toncan Iron Pipe", describes history, properties and applications of Toncan iron pipe—included are service records under severe conditions and in number of specific fields—specifications, charts and diagrams are included for complete coverage of material—issued by Republic Steel Corp., Cleveland.

▲ Mention Item **NED-4867** when writing ▲

COUNTING & MEASURING MACHINES—Illustrated bulletin No. 100 is designed for department heads interested in production, time study, cost accounting and research in industrial plants—details on Productimeter line of standard machines are given—applications of unit and complete descriptions are added—issued by The Durant Mfg. Co., 1922 Buffum St., Milwaukee, Wis.

▲ Mention Item **NED-4868** when writing ▲

FILTER PAPERS—12-page bulletin No. 65 describes complete line of filter papers for routine production filtrations in industrial manufacturing plants—included in discussions are specifications of product, purity and uniformity of papers—diagrams and charts of application, grade and sizes are given—issued by Carl Schleicher & Schuell Co., 116-118 W. 14th St., New York City.

▲ Mention Item **NED-4869** when writing ▲

CUTTING OIL PURIFICATION—4-page illustrated folder, "Clarify Cutting Oils & Coolants", explains continuous circulating, intercepting and clarifying treatment systems—operation of unit is described in detail and unit specifications are added—complete diagram of system explains its operation—issued by Gale Oil Separator Co., Inc., Chrysler Bldg., New York City.

▲ Mention Item **NED-4870** when writing ▲

DIES—12-page illustrated manual No. D-113 covers standardized dies for small arms ammunition—in addition to giving specifications of all standard die sizes for .30 and .50 caliber armor piercing jackets, tracer and bell jackets, cartridge cases, manual also has operator training section covering finishing and servicing of carbide dies—issued by Carboloy Co. Inc., 11163 E. 8 Mile Rd., Detroit.

▲ Mention Item **NED-4871** when writing ▲

INDUSTRIAL BADGES—2-page illustrated folder portraying "Victory" buttons that will display worker's pledge to speed production—included are individual recognition pins for outstanding achievements—descriptions and illustrations are given—prices are included—issued by Royal Emblem Co., 41 John St., New York City.

▲ Mention Item **NED-4872** when writing ▲

FLEXIBLE COUPLING—8-page illustrated bulletin No. 642 reveals construction of flexible couplings—diagrams explain operation and design of units—functions, lubrication, durability and installations are discussed—specifications and sizes are listed in chart form—ordering information is given—issued by W. H. Nicholson & Co., 162 Oregon Street, Wilkes-Barre, Pa.

▲ Mention Item **NED-4873** when writing ▲

LOCK WASHERS—8-page illustrated bulletin, "Shakeproof Stamped Products", contains complete listing of standard lock washers, special stocked lock washers, plating extras for standard lock washers, locking terminals, spring washers, washer assortments—included is description of service kit—list prices are given per thousand—issued by Shakeproof Inc., 2583 N. Keeler Ave., Chicago, Ill.

▲ Mention Item **NED-4874** when writing ▲

TAP RECONDITIONING—illustrated wall chart gives instruction as to recommended methods of sharpening taps including taper, plug, bottoming and spiral pointed types—chart is printed on heavy card and eyeletted to be hung near tap reconditioning machine for handy reference—instructions include number of threads to be ground, for chamfering each type as well as angle—issued by Detroit Tap & Tool Co., 8432 Butler St., Detroit, Mich.

▲ Mention Item **NED-4875** when writing ▲

AIR FILTERS—6-page illustrated bulletin, "Dirt, Drip, Scale are Axis Agents, Too!" points out how dirt, moisture and rust scale kept out of compressed air lines saves pneumatic tools and production rejects—bulletin suggests uses of air filters in aircraft, foundry, shipbuilding, machine shop and spray painting industries—installation diagrams are given—specification sheet includes pipe-capacity table—issued by Filters, Inc., Dept. N, Glendale, Calif.

▲ Mention Item **NED-4876** when writing ▲

OIL PURIFICATION—4-page illustrated bulletin, "285 Years vs. ?" covers flow control of oils through purifying medium, proper location of pure oil outlet, and substance of purifying medium—discussion includes proper heating design, basket design and fabric texture for performance refill—lists bulletin numbers for any type of information requested on purification of oils—issued by Honan-Crane, 605 Indianapolis Ave., Lebanon, Ind.

▲ Mention Item **NED-4877** when writing ▲

Something *really NEW* in Surface Grinders!

Never before has there been a surface grinder of this type and quality offered at so low a price. It is husky, accurate, versatile, easy to operate, portable—and incorporates many advantages not found in machines costing many times as much. It is ideal for surface grinding, tool sharpening and any grinding operations within its range. It has many superior features which include:

Improved, well-designed spindle—the "heart" of any Surface Grinder—made extra-long with bearing at either end, widely spaced.

Special Wheel Mounting System—utilizes two-piece adapter so that either wheel, or wheel and adapter, can be removed.

Improved Table—has long ways so that table never "hangs" over end of machine.

Specially Designed Column—of one-piece construction, cast of high-tensile iron. Entire column, together with bracket can be rotated 360°.

SPECIFICATIONS

Maximum length that can be ground — 13½"; maximum width that can be ground—6"; maximum space under 7" wheel to table—9½"; maximum space under 7" wheel to B & S No. 510 Magnetic chuck—6"; table surface 5¾" x 12".

Write for Special Bulletin

DELTA MILWAUKEE

The Delta Mfg. Co.
616-K E. Vienna Ave.
Milwaukee, Wis.
Send me special bulletin on new Delta Toolmaker Surface Grinder.
Name .....
Address .....

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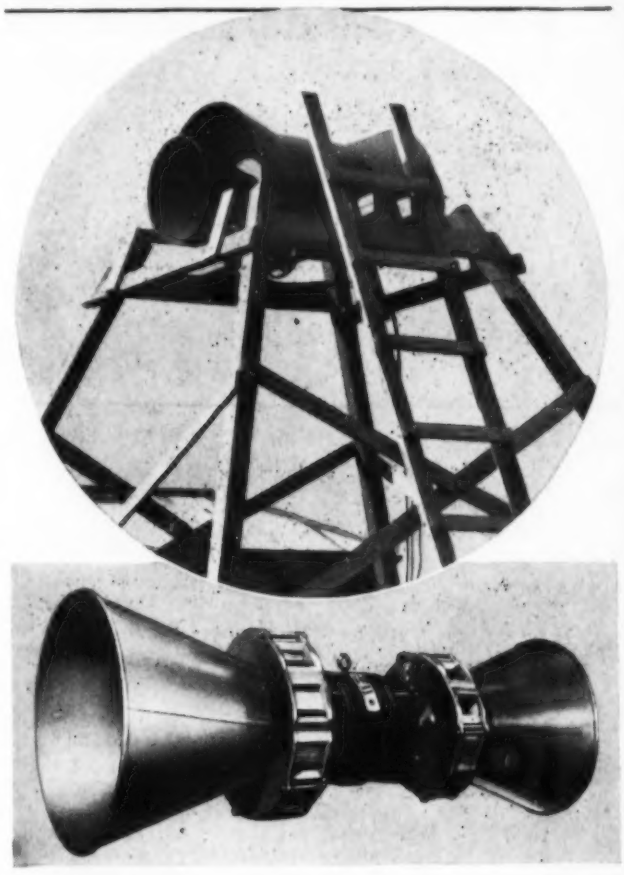

NEW AIR RAID SIRENS USE FAIRBANKS-MORSE MOTORS EXCLUSIVELY

Air raid sirens must have the ability to stand up under all sorts of weather conditions—**extreme heat**, extreme cold, rain, snow, and hail. The electric motor used to operate each siren must possess this same ability to "take it" day in and day out.

In selecting siren motors for the Tri-Tone unit (illustrated), The Hitz Laboratories of Ridgefield Park, N. J. concluded that the Fairbanks-Morse Motor with its moisture-proof insulation, Copperspun Rotor, and enclosed cartridge-type ball bearings which **require only once-a-year lubrication,** was particularly adaptable.

The Tri-Tone air raid siren is a three-tone unit that produces two definite, sustained, unmatched sounds which combine to create a third tone. Resonant horns are attached to each of the siren units. Attached to the Fairbanks-Morse Motor is a convenient hoisting ring.

Because they are precision built to rigid specifications, F-M Motors adequately meet a wide variety of industrial and commercial needs without being "babied"! They can be started, stopped, and reversed at will. No stoppage . . . no breakdowns . . . no letdowns — **now** or later!

Buy good products now for use after the war! Use your priority to buy Fairbanks-Morse Motors . . . to insure against interruptions and to speed production. Fairbanks, Morse & Co., 600 S. Michigan Ave., Chicago, Illinois.

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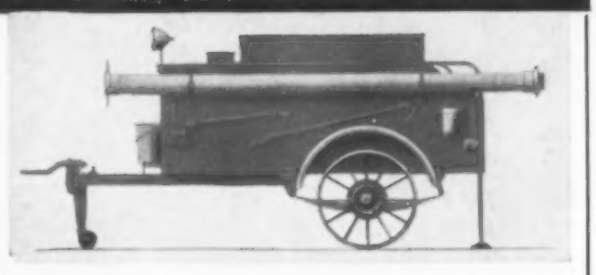
WHEELS for FIRE PUMP TRAILERS



SUITED TO MANY OTHER TYPES OF CONVEYANCES AND PORTABLE EQUIPMENT SUCH AS

AIRPORT EQUIPMENT • GENERATOR SETS • PORTABLE COMPRESSORS • PORTABLE WELDERS • ETC., ETC.

● Builders of the new home defense fire fighting Pump Trailers will find French & Hecht Tension-Bilt Steel Wheels ideally suited to their needs. They comply with government specifications—are complete with removable Hub, Brake Drum, Timken Type Bearings and Hub Cap—and are interchangeable with Pneumatic Type Wheel.

Being Tension-Bilt with spokes hot forged into hub and rim with scientifically predetermined tension, these wheels are lighter yet stronger, round and true, and amazingly resistant to the shocks of hard usage. Tension-Bilt wheels, the most widely used in agriculture, have proven their outstanding worth under the most trying conditions through many years.

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FRENCH & HECHT, INC.
209 Farnam Davenport, Iowa

WHEEL BUILDERS **Tension-Bilt** STEEL WHEELS SINCE 1888

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WANT PROMPT DELIVERY? GET SIGHT FEED A-C WELDERS!

The shift to A-C welding in armament work is pronounced.

And in war production times, you can bet there is a reason for it.

One reason is the fact that A-C does away with magnetic arc blow, which assures sound welds. Another is lower costs because of larger electrodes and higher currents being feasible to use.

Step Ahead of the Field with Sight Feed!

Take advantage of A-C welding's economy, speed, sound welds and low cost operation with Sight Feed A-C Welders. With 12 models Sight Feed offers you the exact machine to take care of your requirements.

Learn what A-C welding and Sight Feed Welders can do for you by writing for complete literature today. Be sure to ask for the article on A-C Progress.

THE SIGHT FEED GENERATOR CO.
Richmond, Indiana

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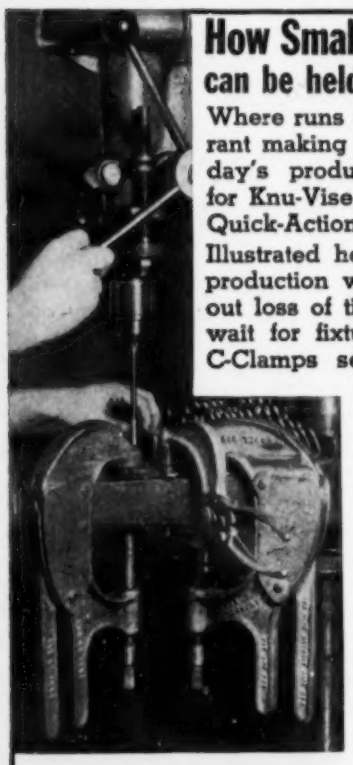

How Small Quantity Runs can be held without fixtures

Where runs are too small to warrant making jigs and fixtures, today's production demands are for Knu-Vise Toggle Clamps and Quick-Action Pliers.

Illustrated here is a case where production was carried on without loss of time; no necessity to wait for fixtures. The two large C-Clamps served as temporary fixtures while the large throated pliers held the work in place during drilling operations.

C-Clamps are available in 5", 6", and 10" sizes, and lend themselves to a range of 15 to 20 different setups. The pliers have 3", 4", and 6" throats.

Let us help you with your clamping problems

KNU-VISE INCORPORATED
2202 8th St. DETROIT, MICH.
4328 San Fernando Rd., Glendale, Calif.

▲ Mention Item **NED-4882** when writing ▲

New Literature—Continued

COATINGS—4-page illustrated catalog, "Corrosion-Resistant Coatings", presents applications for steel, wood and concrete—products described include Shop Coat for natural drying and for baked finishes; Marine coatings for hulls, holds, bottoms, piers; Concrete Primer for high temperature stack coating—issued by Carbozite Corp., 906 First Natl. Bank Bldg., Pittsburgh, Pa.

▲ Mention Item **NED-4883** when writing ▲

WATER SYSTEM EQUIPMENT—illustrated catalog No. WP42 describes ejector or jet type pumps, double acting suction pumps, deep well pumps, hand operated and cistern pumps, and bilge pumps—included in discussion are field kitchen water tank pumps, hand sprayer pumps, power sprays, power washers and other equipment by manufacturer—issued by F. E. Meyers & Bro. Co., Ashland, O.

▲ Mention Item **NED-4884** when writing ▲

Q.M.C. AID BOOK FOR CONTRACTORS—catalog designed to aid contractors of Quartermaster Department—includes standard instructions to bidders, contract provisions, and contract preparation—catalog will save time and effort—issued by War Department, Office Of The Quartermaster General Washington, D. C.

▲ Mention Item **NED-4885** when writing ▲

FLOW MEASURING EQUIPMENT—20-page illustrated catalog N-28-160 covering accuracy and functioning features of manufacturer's meter for measuring flow of water, steam and other fluids—construction details and application specifications are included and discussed—charts and diagrams accompany explanations—issued by Leeds & Northrup Co., 4934 Stenton Ave., Philadelphia, Pa.

▲ Mention Item **NED-4886** when writing ▲

CUTTING TOOLS—illustrated catalog lists sizes of standard cutting tools and shows large number of special tools which are available—catalog contains useful tables covering standard items such as keyways for cutters, dimensions of Morse and B & S taper shanks, weight per inch and others—issued by Genesee Tool Co., Fenton, Mich.

▲ Mention Item **NED-4887** when writing ▲

SILVER BRAZING—8-page illustrated bulletin, "Silver Brazing of Copper Piping", outlines entire procedure of process—diagrams show annealing of silver alloy brazed copper piping, brazing of circumferential rings on expansion joints and brazing low hub flanges to fabricated pipes—issued by Handy & Harman, N-10, 82 Fulton St., New York City.

▲ Mention Item **NED-4888** when writing ▲

LATHES—106-page illustrated booklet, "The Care and Operation of a Lathe", has been designed to instruct beginner how to operate back-geared, screw cutting precision lathe—parts and functions and their care are discussed—table of index is included for easy reference—price is 50c—issued by Sheldon Machine Co., Inc., 1624 N. Kilbourn Ave., Chicago, Ill.

▲ Mention Item **NED-4889** when writing ▲

COUNTING DEVICES—8-page illustrated bulletin No. 100 presents descriptions and applications of production meters manufactured by company—alarm counters, counters for canners and bottlers, hand desk tallies, lineal measuring meters, lumber meters, stroke counters, revolution counters are all covered—issued by Durant Mfg. Co., 1922 N. Buffum St., Milwaukee, Wis.

▲ Mention Item **NED-4890** when writing ▲

WIRING SYSTEMS—32-page illustrated catalog, "Porcelain Protected Wiring Systems", gives complete installation data on porcelain protected wiring—discussion includes where it may be used, safety features, cost and common construction details for installation—diagrams and sketches aid in explanations—issued by Porcelain Products, Inc., Findley, O.

▲ Mention Item **NED-4891** when writing ▲

GAGES—12-page illustrated catalog, "Pressure, Vacuum and Compound Gauges", describes mechanism, transmission, external vibration, flexible ratio and other features—standard and varied type gages are discussed—chart of pressure equivalents is given—issued by Certified Gauge & Instrument Corp., 34-18 Northern Blvd., Long Island City, N. Y.

▲ Mention Item **NED-4892** when writing ▲

LABORATORY & PRODUCTION INSTRUMENTS—4-page illustrated bulletin No. 126 reveals information on sensitive electronic limit bridge for precision resistance testing and highly versatile multitester for production line tests—complete explanations accompany application suggestions and specifications—issued by Radio City Products Co., Inc., 88 A Park Place, New York City.

▲ Mention Item **NED-4893** when writing ▲

METAL & PLASTIC PARTS—two bulletins present facilities and products of manufacturer—illustrated are products of plastic and metal—plant facilities include descriptions of machinery, number of workers, divisions of plant and departments—issued by Victor Metal Products Corp., 196 Diamond St., Brooklyn, N. Y.

▲ Mention Item **NED-4894** when writing ▲

More Soldering Heat .. *FASTER*

with **IDEAL "Thermo-Grip" ELECTRIC SOLDERING TOOLS**

IDEAL "Thermo-Grips" provide higher, quicker heat, with NO Preheating! Solve the problem of new, higher-melting-point solders. "Thermo-Grips" are not the usual type soldering irons, but a large selection of specially designed soldering tools, each for a specific purpose. (See illustration below)

Complete Line of Soldering Equipment

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Sales Offices In All Principal Cities
In Canada: Irving Smith, Ltd., Montreal, Quebec

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OF THIS NEW, ONE PIECE PHOTOGRAPHIC IDENTIFICATION BADGE

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2. Easily assembled at your plant or by us.
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We manufacture a complete line of Merit Awards, Police Badges, Celluloid Buttons, etc.

FREE SAMPLES AND LITERATURE—WRITE TODAY

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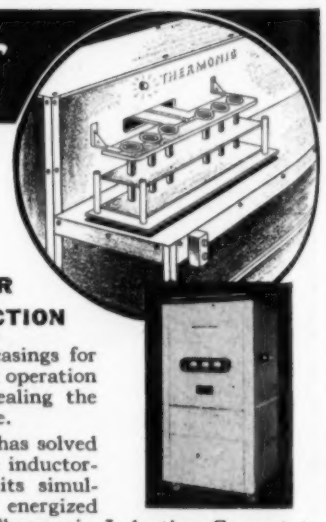
Thermonic



6 IN 30 SECONDS
720 IN ONE HOUR
17,280 IN ONE DAY

NO MATTER HOW IT'S SAID, IT TOPS IN BURSTER CASING BRAZING PRODUCTION

In the fabrication of burster casings for chemical shells, a silver-brazing operation is necessary in joining and sealing the screw-machine part to the tube.

Thermonic Induction Heating has solved this problem by using a single inductor-type coil which heats six units simultaneously in 30 seconds when energized from a 20 kw. Model 1070 Thermonic Induction Generator. The equipment consists of a two-coil setup alternately energized, and permitting one coil to be emptied and reloaded while the other coil is brazing.

By using frequencies of the order of 400,000 cycles per second, a high energy transfer between coil and work is obtainable, and the resultant heat pattern permits the brazing alloy to flow and form a strong, gas-tight joint.

Again Thermonic has come to the fore in speeding production of materials vital to our armed forces.

A series of Data Sheets completely covering the subject of Induction Heating will be issued monthly. Nos. 1, 2 and 3 are ready for you. Write to Department G.

INDUCTION HEATING CORPORATION
Designers • Builders • Of Thermonic Heat Treating Equipment
389 LAFAYETTE STREET NEW YORK CITY, N. Y.

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VARIABLE SPEED CONTROL

Variable speed control of V-belt driven equipment up to a maximum 3 to 1 ratio is provided by this single lever controlled unit. Mechanically simple in design and sturdily constructed to withstand hardest service, models 1A and 2A Toledo variable speed controls have numerous unique features . . . including: plain, smooth pulley, eliminating noise and vibration; stepless speed variation up to full 3 to 1 ratio; minimum pulley diameters are increased to transmit greater H.P. over entire range; new pulley design providing cylindrical bottom for V-belts which fixes minimum pitch diameters, preventing damage to belts and giving increased torque; single arm support, for easy belt application; large shaft, oilite bearings and lubricant reservoir; sector plate serving as dial indicator and additional locking medium; unusually attractive prices.

Wheel assemblies can also be purchased without mountings for application on machines . . . providing built-in speed control.

If you have a variable speed control problem, either on plant equipment or on machinery you build for sale, investigate the Toledo variable speed control . . . you'll be interested in its efficiency and low price. **The Toledo Timer Co.,** 2224 Albion St., Toledo, O. —Advt.

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NEW EQUIPMENT DIGEST

Registered U. S. Patent Office

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Weber Engine Company uses Bantam Quill Bearings in crankshaft of its Type F Vertical Gas Engine—reports excellent results in hundreds of applications.

Combining the advantages of anti-friction construction with high load capacity, small size, and ease of installation, Bantam Quill Bearings are ideally suited for use in the crankshafts of internal combustion engines and similar applications. Simple, effective system of lubrication reduces the need for maintenance attention. For further details on this compact anti-friction bearing, write for Bulletin Z-104.

9 Features of Bantam's Quill Bearing

1. High radial load capacity in limited area.
2. Rollers and races accurately ground and hardened.
3. Design is simple — there are no fragile parts.
4. Flanges of outer race are ground on inside face.
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6. Easy to install.
7. Curvilinear trunnions for greater strength.
8. One piece outer race —rollers are self-retained.
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STRAIGHT ROLLER • TAPERED ROLLER • NEEDLE • BALL
BANTAM BEARINGS CORPORATION • SOUTH BEND, INDIANA

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FOR STEAM PIPES UNDER PRESSURE

No expansion joints are needed when 4-wall interlocking joint PENFLEX inherently provides 3/8" of "come and go" for every foot of length. Packed with lubricated asbestos there is never any servicing. May be buried directly in ground. Make your own tests.

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Longacre Park Heating Co.
Uses PENFLEX

Pennsylvania Flexible Metallic Tubing Co.
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As the Shifts Come and Go Clark's Trucks Keep Rolling

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DIVISION OF CLARK EQUIPMENT COMPANY
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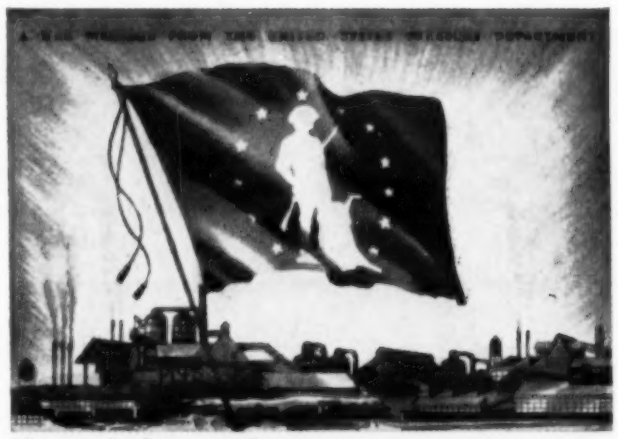

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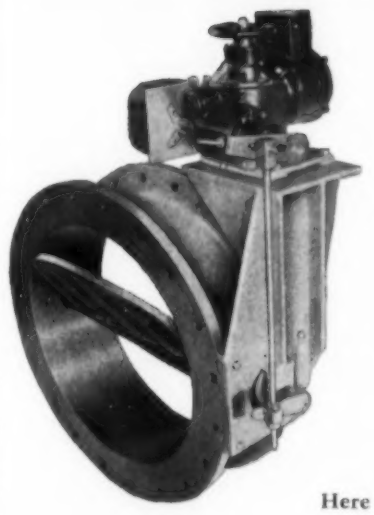
Signifying 90 percent or More Employee Participation in the Pay-Roll Savings Plan

IT doesn't go into the smoke of battle, but wherever you see this flag you know that it spells Victory for our boys on the fighting fronts. To everyone, it means that the firm which flies it has attained 90 percent or more employee participation in the Pay-Roll Savings Plan . . that their employees are turning a part of their earnings into U. S. Savings Bonds *regularly*, every pay day, with the goal being 10 percent of the gross pay roll allotted to Bonds. You don't need to be engaged in war production activity to fly this flag. Any patriotic firm can qualify. For facts about the Pay-Roll Savings Plan, write Treasury Department, Section D, 709 12th Street, NW., Washington, D. C.

MAKE EVERY PAY DAY "BOND DAY"

U. S. WAR Bonds ★ Stamps

automatic!



Electric Motor Operated
•
Positive Control of Volume and Pressure
•
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Here is a simplified, precise and entirely automatic valve for the wedge-tight shut-off and control of liquids and gases in power plants, water works, chemical industries and refineries. 24", 15-lb. American Standard with hand wheel for manual operation in case of current failure. Available in 125-lb. iron, 150- and 300-lb. steel in sizes to 84".

Six Hand Wheel Revolutions Complete Full Vane Movement

Six revolutions of the hand wheel fully open or close this 125-lb. R-S Butterfly Valve. Compare this quick action with ordinary valves, some of which require as long a time as five minutes for complete opening or closing.

Comparatively light in weight, R-S Butterfly Valves effect considerable savings in installations costs since less space and supporting structure are required. Remember, too, that the vane closes naturally against the body of the valve and at the correct angle for the wedge-tight shut-off of any material that flows or is forced through a pipe.

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R-S Streamlined BUTTERFLY VALVES

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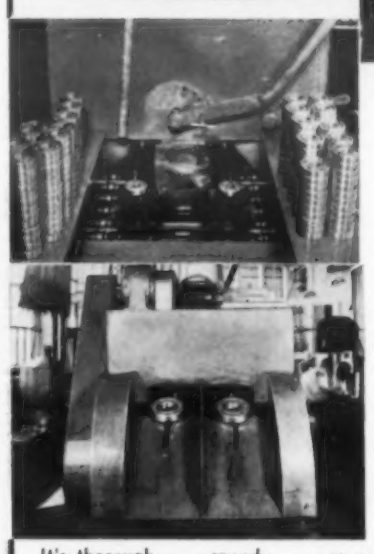
For Your Convenience in Obtaining Information on Products, Use Inquiry Blank Enclosed in This Issue.

RANSOHOFF
Metal Cleaning EQUIPMENT



HERE'S HOW
WE ACTUALLY HELP YOU

Illustrations show a Ransohoff Wash and Rinse machine cleaning assembled precision ball bearings.

IDEAL

It's thorough . . . speedy . . . as automatic as possible . . . and cuts cleaning costs to the bone. And it HELPS YOU SAVE TIME IN YOUR PRODUCTION SCHEDULES BECAUSE YOUR CLEANING IS A MERE ROUTINE OPERATION INSTEAD OF A "BOTTLENECK" OR DRAG.

Write, phone or wire Dept. NED for details.

N. RANSOHOFF, Inc. Township and Big 4 R. R. CINCINNATI, OHIO
Cleaning Machinery Specialists

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HOW TO SPEED UP with SPEED REDUCERS

● The use of Saco Speed Reducers in adapting any available motors to production machines is another way to *speed up output.* Prompt delivery for war requirements can be made on most sizes. They offer a range of reduction ratios from 10-to-1 up to 60-to-1.

SACO
Speed Reducers

Double Reduction—First reduction through V-belt sheaves, can be changed for different ratios, and second internal reduction (10:1) through steel helical gears . . . Mount any standard type motor... Less floor space and less supporting structure required; adjustable hinged base mounts motor on top.

Send for Data Bulletin 7838

STEPHENS-ADAMSON MFG. CO.
Car Pullers · Car Loaders · Winches · SealMaster Ball Bearings · Speed Reducers · Conveyors · Elevators · Screens
12 RIDGEWAY AVE., AURORA, ILL.

▲ Mention Item NED-4904 when writing ▲

The GROVE Pneumatic Gauge COMPARATOR

GROVE SIMPLICITY ACCURACY SAFETY

The Portable Method of Checking All Types Of Pressure Gauges

- Compact, portable and fully self-contained.
- Built-in high capacity rechargeable air cylinders.
- Precision laboratory test gauges accurate to within ¼ of 1% full scale.
- Completely equipped with tubing, connections and accessories.

Figure the amount of time, trouble and money you save when you check your pressure gauges "in-place" without removing them from their panels or mountings; without disturbing existing line connections. The portable Grove Pneumatic Gauge Comparator gives you this fast accurate means of accurately checking any service gauge in service. Write today for Bulletin 300.

GROVE REGULATOR COMPANY
1735 67th Street, Oakland, California
Branch Offices:
5644 Navigation Blvd., Houston, Texas—30 Rockefeller Plaza, New York City

GROVE Pneumatic Gauge COMPARATOR

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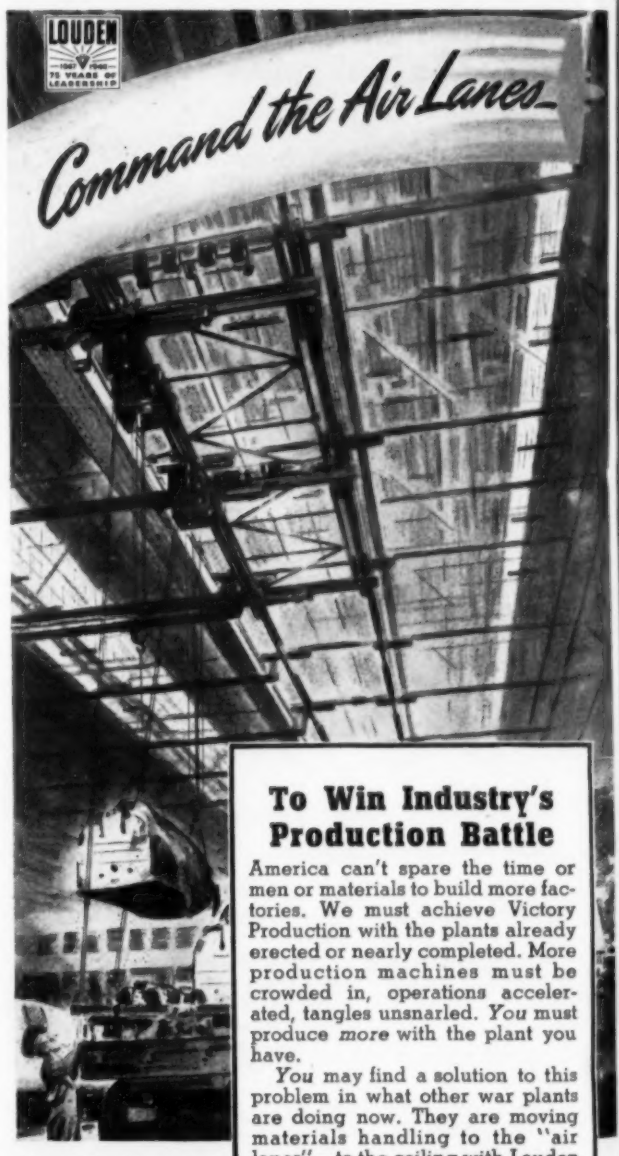

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DENISON EQUIPMENT in APPLIED HydrOILics

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NON SKID!

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SPECIALISTS in sub-contracts for war work.

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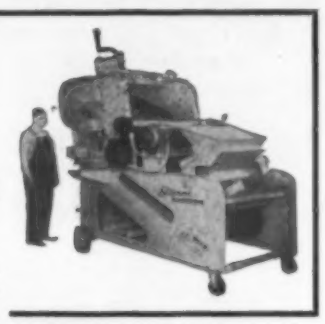
PULLEY SEPARATORS pay for THEMSELVES



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CLUTCHES
BRAKES
DRUMS
MAGNETS

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653 S. 28th St., Milwaukee, Wis.

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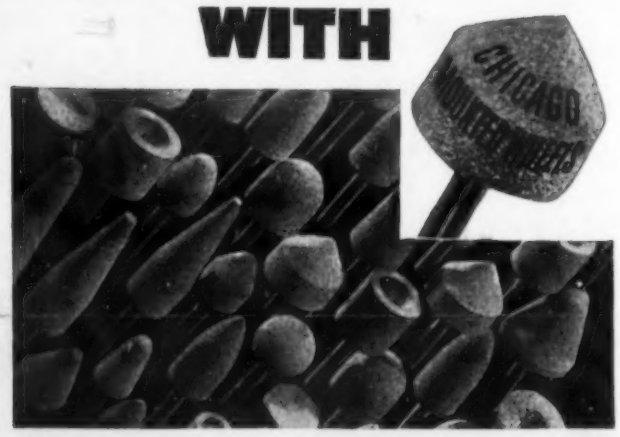

They're TOUGH and DO their STUFF!

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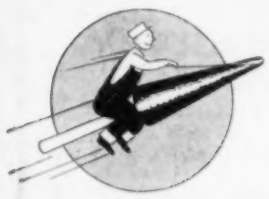

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If you have a grinding problem, send for a Survey blank, which you'll find easy to fill out. Upon its return, our abrasive engineers will analyze it and send you without charge the trial wheel they recommend for your particular job.

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Makers of Quality Products Since 1896
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New Literature—Continued

INDUSTRIAL MACHINES—illustrated booklet features time-saving adaptions of low-cost machines to all branches of armament program—included are adaptions showing scope of operations of drill presses; grinders; cut-off machines; abrasive finishing machines; circular, scroll and band saws—issued by Delta Mfg. Co., 614 E. Vienna Ave., Milwaukee, Wis.

▲ Mention Item NED-4916 when writing ▲

AIR RAID EQUIPMENT—12-page illustrated catalog, "Black-out, Air Raid Damage and Glass Splinter Protection for Industrial Plants", gives gentle reminder that 60 to 80 per cent of British air raid casualties are caused from flying glass and then offers "safety blanket" for protection—instructions as to use and abilities of blackout protection blanket are given—issued by Clinton Carpet Co., 295 Fifth Ave., New York City.

▲ Mention Item NED-4917 when writing ▲

INDUSTRIAL LIGHTING—30-page illustrated bulletin, "Anniversary Edition", tells in detail story of manufacturer's products, organization, installations and methods—industrial lighting equipment is discussed and described—model equipment is displayed and applications suggested—added is information concerning baking and drying, filter equipment and grinding equipment—issued by The Fostoria Steel Corp., 1240 Harris Rd., Fostoria, O.

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PUMP STRAINERS—2-page illustrated bulletin No. 400 covers line of Ezy-Kleen strainers—specifications show four types of strainers available in choice of three standard constructions—they are all-iron, bronze fitted and all-bronze—features include steam jacketed strainer for viscous liquids and low-swing strainer with detachable top—issued by Blackmer Pump Co., 1976 Century Ave., Grand Rapids, Mich.

▲ Mention Item NED-4919 when writing ▲

REFRIGERATING, HEATING & AIR CONDITIONING—24-page illustrated catalog, "Civilian Conservation", is directed to service engineers who give routine care to equipment for air conditioning, refrigerating and heating—included are instructions and suggestions in non-technical terms—also covered are bearings, expansion valves, air intakes, filters, controls and other equipment—issued by Carrier Corp., 302 S. Geddes St., Syracuse, N. Y.

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WELDING INFORMATION—1308-page illustrated book, "Procedure Handbook of Arc Welding Design and Practice", seventh edition, provides up-to-minute information to help men in shops, shipyards, airplane factories, ordinance plants and arsenals produce to fullest extent—book explains modern methods and techniques used in welding—price $1.50—issued by The Lincoln Electric Co., Dept. AP-574, 12812 Coit Rd., Cleveland, O.

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MACHINE TOOL ACCESSORIES—8-page illustrated catalog, "Save Time—Speed Production—Keep Costs Down", features live centers, metal etchers, demagnetizers, grinding wheel dresser in descriptions—also covered are balancing ways, variable speed pulleys, electric markers and portable cleaners—issued by Ideal Commutator Dresser Co., 1032 Park Ave., Sycamore, Ill.

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WELDING EQUIPMENT CONSERVATION—14-page illustrated bulletin, "Fight Waste", consists of series of shop posters designed to help arc welding operators do more useful work with every electrode—six posters portray common wasteful practices as compared with good practice—posters are bound into booklet, yet can be detached and tacked on shop bulletin boards—issued by Air Reduction Sales Co., 60 E. Forty-second St., New York City.

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FIRE BRIGADE TRAINING—120-page illustrated booklet, "The Organization and Training of Industrial Fire Brigades", is designed to furnish sufficient information for training of competent firemen for industrial organizations—discussed are extinguisher equipment, ventilation, ladder use, hose use, standpipes, evacuation of plant, rescue work, salvage operations—price $1.00 per copy—issued by S. C. Toof & Co., 195 Madison Ave., Memphis, Tenn.

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HEAT TREATING—20-page illustrated catalog No. 107A describes modern installations of immersed electrode salt bath furnace with self circulating, self heating, feature—included are all types for hardening steel tools, carburizing, neutral hardening, heat treating aluminum alloys, selective heating, annealing, brazing and armament applications—issued by Ajax Electric Co., Inc., Frankford Ave. at Delaware Ave., Philadelphia, Pa.

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